

FINAL SUBMITTAL

ENERGY ENGINEERING ANALYSIS PROGRAM
LIGHTING SURVEY OF SELECTED BUILDINGS

PINE BLUFF ARSENAL
PINE BLUFF, ARKANSAS

VOLUME IIE
APPENDICES

CONTRACT NO. DACA01-94-D-0038
DELIVERY ORDER NO. 0001

PREPARED FOR:

U.S. ARMY CORPS OF ENGINEERS
LITTLE ROCK, ARKANSAS

PREPARED BY:

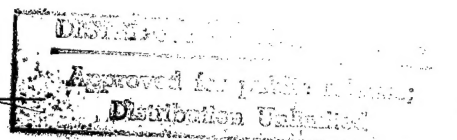
REYNOLDS, SMITH AND HILLS, INC.
ENERGY SERVICES DEPARTMENT
P.O. BOX 4850
JACKSONVILLE, FLORIDA 32201

PROJECT NO. 6941331001

JUNE 1995


Carlos S. Warren, PhD, PE
Project Manager

THIS QUALITY INSPECTED 2



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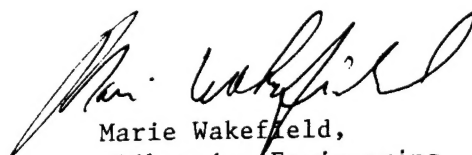


DEPARTMENT OF THE ARMY
CONSTRUCTION ENGINEERING RESEARCH LABORATORIES, CORPS OF ENGINEERS
P.O. BOX 9005
CHAMPAIGN, ILLINOIS 61826-9005

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Marie Wakefield,
Librarian Engineering

VOLUME IIE
TABLE OF CONTENTS

APPENDIX B (CONT'D)

DETAIL CALCULATIONS

BLDGS 63-100
63-110
63-120
63-200
63-210
63-410

APPENDIX C

DETAIL COST CALCULATIONS

ECO 1	LIGHTING UPGRADE
ECO 4	OCCUPANCY SENSORS
ECO 5	PHOTOCELLS
ECO 8	LED EXIT SIGNS

APPENDIX D

UTILITY RATE ANALYSIS

Bldg 63-100 Summary

Present System

Fixture Type	Watts/ Fixture	Number Fixtures	Total Watts
B	192	2	384
C2	246	3	738
C4	276	2	552
C5	123	43	5,289
F	166	29	4,814
L1	96	24	2,304
Totals		103	14,081

Replacement System

Fixture Type	Watts/ Fixture	Number Fixtures	Total Watts
BR	61	2	122
C8	105	41	4,305
F8	59	29	1,711
L8	60	15	900
Totals		87	7,038

63-100 Schedule

Reynolds, Smith & Hills, Inc.
4651 Salisbury Road
Jacksonville, FL 32256
Buildings Engineering

Luminaire Fixture Schedule
Generated by LitePro V2.27E
Provided and supported by USI Lighting, Inc.
Filename: 63-100 Type: Indoor

Luminaire Fixture Schedule /PRESENT

Project name: Lighting Survey - PBA Bldg 63-100
Prepared for: Corps of Engineers
Prepared by: C. Warren

Project #6941331
Date: 14-Mar-95
UPD: 1.6W/Sq.Ft

TYPE	DESCRIPTION	LAMP/BALLAST	V/W	QTY	REMARKS
B	15"X4'4L CEILING MT.WRAPAROUND LENS- PRISMATIC W/ GLOW ENDS COLUMBIA WCW440-A	F40CW STD	000 - 192	2	
C2	8'4L APER.PORCELAIN INDUSTRIAL OPEN BOTTOM- NO SHIELDING COLUMBIA KP496	F96T12/CW/WM ESB	000 - 246	3	
C4	8'4L APER.PORCELAIN INDUSTRIAL OPEN BOTTOM- NO SHIELDING COLUMBIA KP496	F96T12/CW/WM STD	000 - 276	2	
C5	11"X8' 2L INDUSTRIAL OPEN BOTTOM- NO SHIELDING COLUMBIA CSR296	F96T12/CW/WM ESB	000 - 123	43	
F	2X4 4L FLUSH STATIC TROFFER LENS- .125" POLARIZED PATT.12 COLUMBIA 4PS2*-87-244	F40CW ESB	000 - 166	29	
L1	11"X4' 2L INDUSTRIAL OPEN BOTTOM- NO SHIELDING COLUMBIA CSR240	F40CW STD	000 - 96	24	

NOTES:

63-100 Schedule

Reynolds, Smith & Hills, Inc.
 4651 Salisbury Road
 Jacksonville, FL 32256
 Buildings Engineering

Luminaire Fixture Schedule
 Generated by LitePro V2.27E
 Provided and supported by USI Lighting, Inc.
 Filename: 63-100 Type: Indoor

Luminaire Fixture Schedule / **PROPOSED**

Project name: Lighting Survey - PBA Bldg 63-100
 Prepared for: Corps of Engineers
 Prepared by: C. Warren

Project #6941331
 Date: 14-Mar-95
 UPD: 0.8W/Sq.Ft

TYPE	DESCRIPTION	LAMP/BALLAST	V/W	QTY	REMARKS
BR	4' ACRYLIC LENS WRAPAROUND SILVER TASK BEAM REFLECTOR METALOPTICS WRSN4STACLO42EP11	FO32/35K EOCT	000 - 61	2	
78	11"X8' 2L INDUSTRIAL OPEN BOTTOM- NO SHIELDING COLUMBIA CSR296	FO96/735 EOCT	000 - 105	41	
F8	2X4 2L FLUSH STATIC TROFFER LENS-PRISMATIC ACRYLIC PATT-19 COLUMBIA T84PS2*-84-242-2EOCT	FO32/31K EOCT	000 - 59	29	
L8	1X4 2L SOLID REFL.INDUSTRIAL OPEN- NO SHIELDING COLUMBIA CSR240-PAF-EOCT	FO32/35K EOCT	000 - 60	15	

NOTES:

Reynolds, Smith & Hills, Inc.
 4651 Salisbury Road
 Jacksonville, FL 32256
 Buildings Engineering

Project Area Summary
 Generated by LitePro V2.27E
 Provided and supported by USI Lighting, Inc.
 Filename: 63-100 Type: Indoor

Project Area Summary

Project name: Lighting Survey - PBA Bldg 63-100
 Prepared for: Corps of Engineers
 Prepared by: C. Warren

Project #6941331
 Date: 14-Mar-95
 UPD: 1.2W/Sq.Ft

AREA NAME	DIMENSIONS	LUMINAIRES	W/SQ.FT	QTY
OFFICE 1	16x19x10Ft	(2) Type C4 (4) Type L1	3.1	1
OFFICE 1-N	16x19x10Ft	(2) Type C8 (4) Type L8	1.5	1
WOMEN'S RR	12x8x10Ft	(2) Type L1	2.0	1
WOMEN'S RR-N	12x8x10Ft	(2) Type L8	1.3	1
OFFICE 2	12x11x10Ft	(2) Type B	2.9	1
OFFICE 2-N	12x11x10Ft	(2) Type BR	0.9	1
M-S DISTRIBUTN	52x51x10Ft	(29) Type F	1.8	1
M-S DISTRIB.-N	52x51x10Ft	(29) Type F8	0.6	1
HALL 1	20x5x10Ft	(4) Type L1	3.8	1
HALL 1-N	20x5x10Ft	(1) Type L8	0.6	1
MEN'S RR	11x14x10Ft	(2) Type L1	1.2	1
MEN'S RR-N	11x14x10Ft	(1) Type L8	0.4	1
CHANGE ROOM	15x14x10Ft	(4) Type L1	1.8	1
CHANGE ROOM-N	15x14x10Ft	(4) Type L8	1.1	1
HALL 2	7x52x10Ft	(8) Type L1	2.1	1
HALL 2-N	7x52x10Ft	(3) Type L8	0.5	1
CLEAN ROOM	60x40x10Ft	(3) Type C2 (29) Type C5	1.8	1

Page 2

63-100 Areas

CLEAN ROOM-N	60x40x10Ft	(27)	Type C8	1.2	1
STORAGE/BREAK	60x42x13Ft	(14)	Type C5	0.7	1
STORAGE/BREAK-N	60x42x13Ft	(12)	Type C8	0.5	1

NOTES:

63-100 Calculations

Reynolds, Smith & Hills, Inc.
 4651 Salisbury Road
 Jacksonville, FL 32256
 Buildings Engineering

Project Calculation Summary
 Generated by LitePro V2.27E
 Provided and supported by USI Lighting, Inc.
 Filename: 63-100 Type: Indoor

Project Calculation Summary

Project name: Lighting Survey - PBA Bldg 63-100
 Prepared for: Corps of Engineers
 Prepared by: C. Warren

Project #6941331
 Date: 14-Mar-95
 UPD: 1.2W/Sq.Ft

AREA NAME	DIMENSIONS	GRID NAME	AVE	MAX	MIN
OFFICE 1	16x19x10Ft	Ceiling	<+> 83.3	114.5	53.4
OFFICE 1-N	16x19x10Ft	Ceiling	<+> 57.9	67.7	45.3
WOMEN'S RR	12x8x10Ft	Ceiling	<+> 36.1	43.9	28.6
WOMEN'S RR-N	12x8x10Ft	Ceiling	<+> 33.2	40.2	26.5
OFFICE 2	12x11x10Ft	Ceiling	<+> 55.5	78.7	35.2
OFFICE 2-N	12x11x10Ft	Ceiling	<+> 36.2	54.2	21.6
M-S DISTRIBUTN	52x51x10Ft	Ceiling	<+> 50.9	65.3	0.0
M-S DISTRIB.-N	52x51x10Ft	Ceiling	<+> 30.4	38.0	0.0
HALL 1	20x5x10Ft	Ceiling	<+> 61.0	67.5	48.6
HALL 1-N	20x5x10Ft	Ceiling	<+> 15.2	26.0	6.9
MEN'S RR	11x14x10Ft	Ceiling	<+> 26.8	41.4	12.9
MEN'S RR-N	11x14x10Ft	Ceiling	<+> 12.7	20.5	6.2
CHANGE ROOM	15x14x10Ft	Ceiling	<+> 43.6	57.2	28.2
CHANGE ROOM-N	15x14x10Ft	Ceiling	<+> 40.3	52.7	28.1
HALL 2	7x52x10Ft	Ceiling	<+> 47.2	54.4	28.5
HALL 2-N	7x52x10Ft	Ceiling	<+> 16.5	23.9	6.9
CLEAN ROOM	60x40x10Ft	Ceiling	<+> 93.5	147.0	29.5
CLEAN ROOM-N	60x40x10Ft	Ceiling	<+> 70.1	95.6	33.6

Page 2

63-100 Calculations

STORAGE/BREAK	60x42x13Ft	Ceiling	<+>	30.3	63.1	0.0
STORAGE/BREAK-N	60x42x13Ft	Ceiling	<+>	25.1	62.0	0.0

NOTES:

USI's LITE*PRO V2.27E Point-By-Point Numeric Output 14:28 5-Jan-95
PROJECT: 63-100 AREA: OFFICE 1 GRID: Ceiling
Values are FC, SCALE: 1 IN= 4.0FT, HORZ GRID (U), HORZ CALC, Z= 2.5
Computed in accordance with IES recommendations

+ MIN=53.4 MAX=114. AVE=83.3 AVE/MIN= 1.56 MAX/MIN= 2.14

C4 <2> = K7983M COLUMBIA KP496, (4) F96T12/CW/WM, LLF= 0.69
L1 <4> = K7990 COLUMBIA CSR240, (2) F40CW, LLF= 0.68

Y-AXIS

18.5	53.4	59.0	63.0	65.7	65.7	63.0	59.0	53.4
16.5	60.0	67.5	72.5	75.0	75.0	72.5	67.5	60.0
14.5	L1 →		L1 →		L1 →		L1 →	
12.5	63.7	72.4	78.0	80.8	80.8	78.0	72.4	63.7
10.5	65.5	74.6	80.5	83.3	83.3	80.5	74.6	65.5
8.5	68.1	77.5	83.7	86.9	86.9	83.7	77.5	68.1
6.5	74.7	84.6	91.5	94.9	94.9	91.5	84.6	74.7
4.5	83.3	95.6	104.	107.	107.	104.	95.6	83.3
2.5	89.4	102.0	111.	114.	114.	111.	102.	89.4
0.5	87.2	98.3	106.	110.	110.	106.	98.3	87.2
	76.5	84.9	90.9	94.6	94.6	90.9	84.9	76.5
	1.0	3.0	5.0	7.0	9.0	11.0	13.0	15.0

X-AXIS

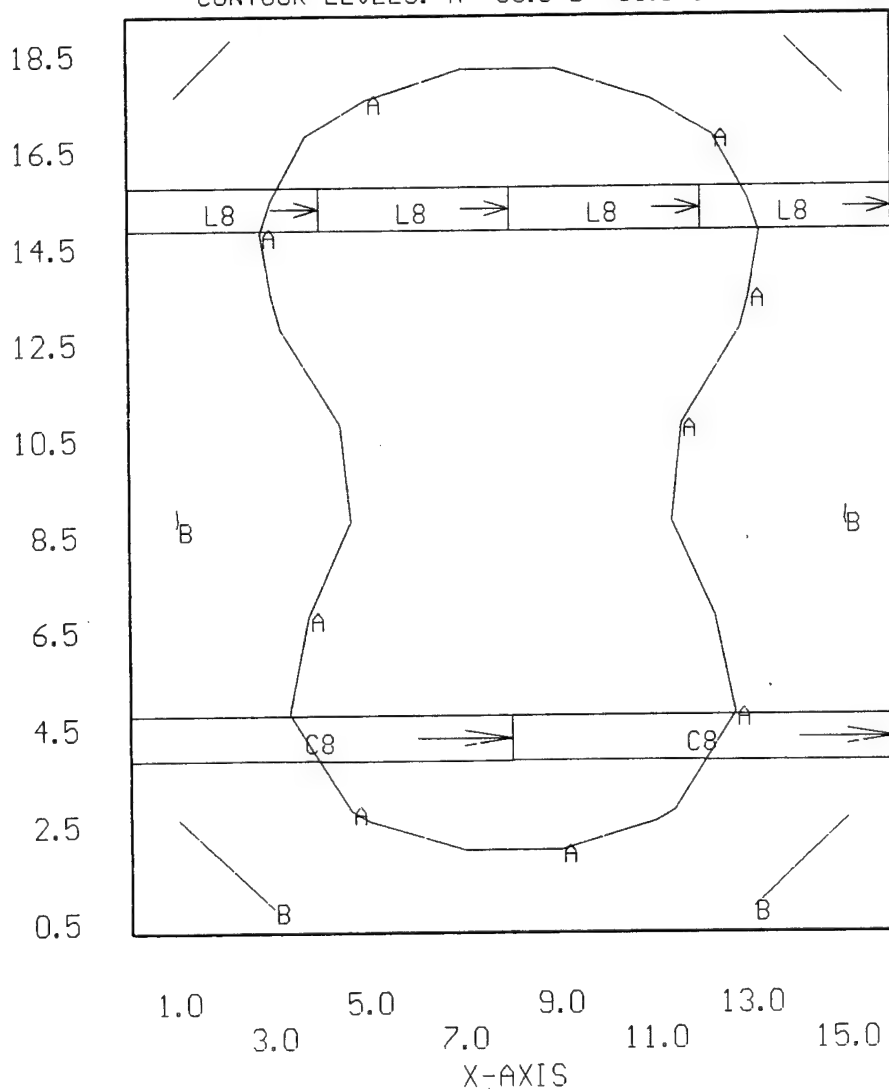
USI's LITE*PRO V2.27E Point-By-Point Numeric Output 13:29 14-Mar-95
 PROJECT: 63-100 AREA: OFFICE 1-N GRID: Ceiling
 Values are FC, SCALE: 1 IN= 4.0FT, HORZ GRID (U), HORZ CALC, Z= 2.5
 Computed in accordance with IES recommendations

+ MIN=45.3 MAX=67.7 AVE=57.9 AVE/MIN= 1.28 MAX/MIN= 1.49

C8 <2> = K7993 COLUMBIA CSR296, <2> F096/735, LLF= 0.66
 L8 <4> = 10331 COLUMBIA CSR240-PAF-EOCT, <2> F032/35K, LLF= 0.66

Y-AXIS

CONTOUR LEVELS: A= 60.0 B= 50.0 C= 40.0 D= 30.0 E= 20.0



USI's LITE*PRO V2.27E Point-By-Point Numeric Output 14:26 5-Jan-95
 PROJECT: 63-100 AREA: WOMEN'S RR GRID: Ceiling
 Values are FC, SCALE: 1 IN= 4.0FT, HORZ GRID (U), HORZ CALC, Z= 2.5
 Computed in accordance with IES recommendations

+ MIN=28.6 MAX=43.9 AVE=36.1 AVE/MIN= 1.26 MAX/MIN= 1.53

L1 <2> = K7990 COLUMBIA CSR240, <2> F40CW, LLF= 0.68

Y-AXIS

7.0	+	28.6	+	34.6	+	38.9	+	38.9	+	34.6	+	28.6	+
5.0	+	31.5	+	39.0	+	43.9	+	43.9	+	39.0	+	31.5	+
3.0	+	31.5	+	39.0	+	43.9	+	43.9	+	39.0	+	31.5	+
1.0	+	28.6	+	34.6	+	38.9	+	38.9	+	34.6	+	28.6	+

1.0 3.0 5.0 7.0 9.0 11.0
 X-AXIS

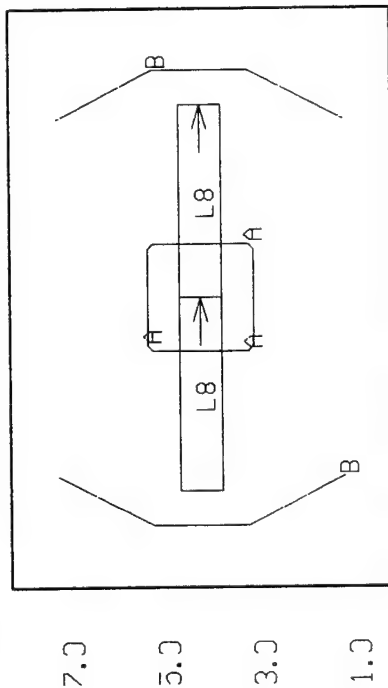
USI's LITE*PRO U2.27E Point-By-Point Numeric Output 13:34 14-Mar-95
 PROJECT: 63-100 AREA: WOMEN'S RP-N GRID: Ceiling
 Values are FC, SCALE: 1 IN= 4.0FT, HORZ GRID (U), HORZ CALC, Z= 2.5
 Computed in accordance with IES recommendations

+ MIN=26.5 MAX=40.2 AVE=33.2 AVE/MIN= 1.25 MAX/MIN= 1.52

L8 <2> = 10331 COLUMBIA CSR240-PAF-EJECT, <2> F032/35K, L_F= 0.66

Y-AXIS

CONTOUR LEVELS: A= 40.0 B= 30.0 C= 20.0 D= 10.0



1.0 3.0 5.0 7.0 9.0 11.0
 X-AXIS

USI's LITE*PRO V2.27E Point-By-Point Numeric Output 14:36 5-Jan-95
 PROJECT: 63-100 AREA: OFFICE 2 GRID: Ceiling
 Values are FC, SCALE: 1 IN= 4.0FT, HORZ GRID (U), HORZ CALC, Z= 2.5
 Computed in accordance with IES recommendations

+ MIN=35.2 MAX=78.7 AVE=55.5 AVE/MIN= 1.58 MAX/MIN= 2.24

B <2> = K9708 COLUMBIA WCW440-A, <4> F40CW, LLF= 0.68

Y-AXIS

10.5	+	35.2	+	45.5	+	55.4	+	55.4	+	45.5	+	35.2	+
8.5	+	43.0	+	58.2	+	69.7	+	69.7	+	58.2	+	43.0	+
6.5	+	48.5	+	65.4	+	78.7	+	78.7	+	65.4	+	48.5	+
4.5	+	48.5	+	65.4	+	78.7	+	78.7	+	65.4	+	48.5	+
2.5	+	43.0	+	58.2	+	69.7	+	69.7	+	58.2	+	43.0	+
0.5	+	35.2	+	45.5	+	55.4	+	55.4	+	45.5	+	35.2	+

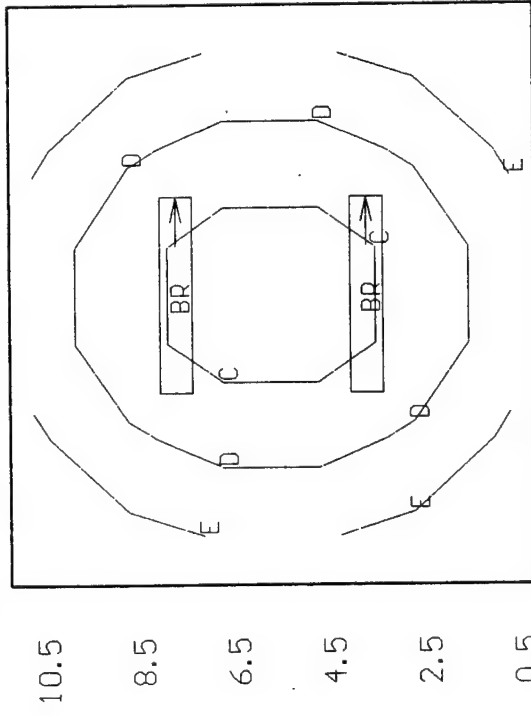
1.0 3.0 5.0 7.0 9.0 11.0
 X-AXIS

JSI's LITE*PRO V2.27E Point-By-Point Numeric Output 13:45 14-Mar-95
 PROJECT: 63-100 AREA: OFFICE 2-N GRID: Ceiling
 Values are FC, SCALE: 1 IN= 4.0F', HORZ GRID (U), HORZ CALC, Z= 2.5
 Computed in accordance with IES recommendations

+ MIN=21.6 MAX=54.2 AVE=36.2 AVE/MIN= 1.68 MAX/MIN= 2.51

3R <2> = T9939 METALOPTICS WRSN4STACLO42EP11, <2> F032/35K, LLF= 0.81

Y-AXIS CONTOUR LEVELS: A= 70.0 B= 60.0 C= 50.0 D= 40.0 E= 30.0



US1's LITE*PRO V2.27E Point-By-Point Numeric Output 15:31.5-Jan-95
PROJECT: 63-100 AREA: M-S DISTRIBUTN GRID: Ceiling
Values are FC, SCALE: 1 IN= 16.0FT, HORZ GRID (U), HORZ CALC, Z= 2.5
Computed in accordance with IES recommendations

+ MIN=0.00	MAX=65.3	AVE=50.9	AVE/MIN=N/A	MAX/MIN=N/A
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F <29> = 9753 COLUMBIA 4PS2*-87-244, (4) F40CW, LLF= 0.68

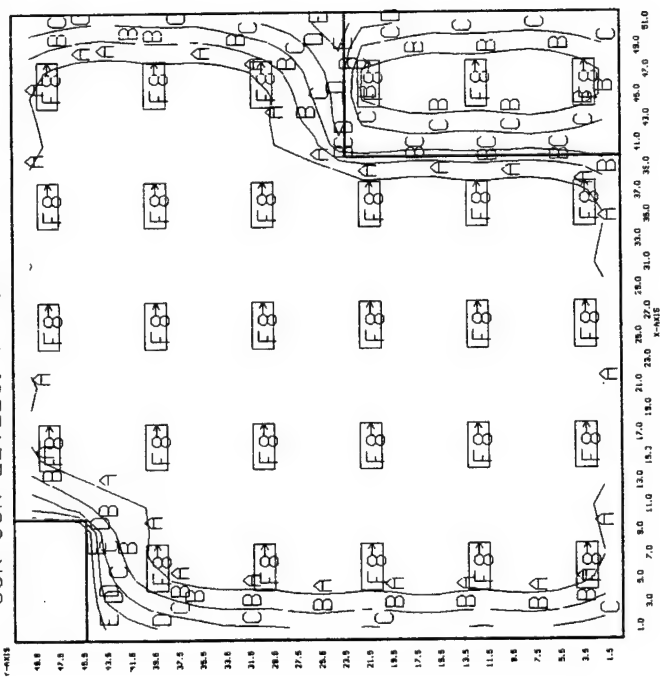
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JSI's LITE*PRO V2.27E Point-By-Point Numeric Output 13:51 14-Mar-95
 PROJECT: 63-100 AREA: M-S DISTRIB.-N GRID: Ceiling
 Values are FC, SCALE: 1 IN= 16.0FT, HORZ GRID (U), HORZ CALC, Z= 2.5
 Computed in accordance with IES recommendations

+ MIN=0.00 MAX=38.0 AVE=30.4 AVE/MIN=N/A MAX/MIN=N/A

F8 <29> = 9868 COLUMBIA T84PS2*-84-242-2EOCT, (2) F032/31K, LLF= 0.66

CONTOUR LEVELS: A= 30.0 B= 25.0 C= 20.0 D= 15.0 E= 10.0



USI's LITE*PRO V2.27E Point-By-Point Numeric Output 15:37 5-Jan-95
PROJECT: 63-100 AREA: HALL 1 GRID: Ceiling
Values are FC, SCALE: 1 IN= 4.0FT, HORZ GRID (U), HORZ CALC, Z= 2.5
Computed in accordance with IES recommendations

+ MIN=48.6	MAX=67.5	AVE=61.0	AVE/MIN=	1.25	MAX/MIN=	1.39
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L1 <4> = K7990 COLUMBIA CSR240, <2> F40CW, LLF= 0.68

Y-AXIS

[illegible]

USI's LITE*PRO V2.27E Point-By-Point Numeric Output 13:58 14-Mar-95
PROJECT: 63-100 AREA: HALL 1-N GRID: Ceiling
Values are FC, SCALE: 1 IN= 4.0FT, HORZ GRID (U), HORZ CA-C, Z= 2.5
Computed in accordance with IES recommendations

+ MIN=6.89	MAX=26.0	AVE=15.2	AVE/MIN=	2.21	MAX-MIN=	3.77
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L8 <1> = 10331 COLUMBIA CSR240-PAF-EOCT, <2> F032/35K, LLF= 0.66

Y-AXIS

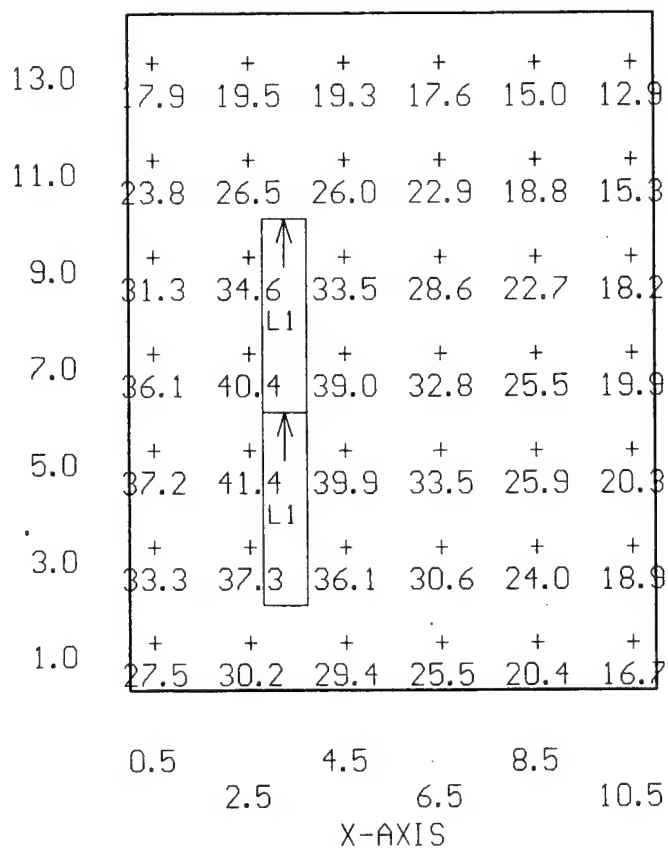
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USI's LITE*PRO V2.27E Point-By-Point Numeric Output 15:43 5-Jan-95
 PROJECT: 63-100 AREA: MEN'S RR GRID: Ceiling
 Values are FC, SCALE: 1 IN= 4.0FT, HORZ GRID (U), HORZ CALC, Z= 2.5
 Computed in accordance with IES recommendations

+ MIN=12.9 MAX=41.4 AVE=26.8 AVE/MIN= 2.08 MAX/MIN= 3.21

L1 <2> = K7990 COLUMBIA CSR240, <2> F40CW, LLF= 0.68

Y-AXIS

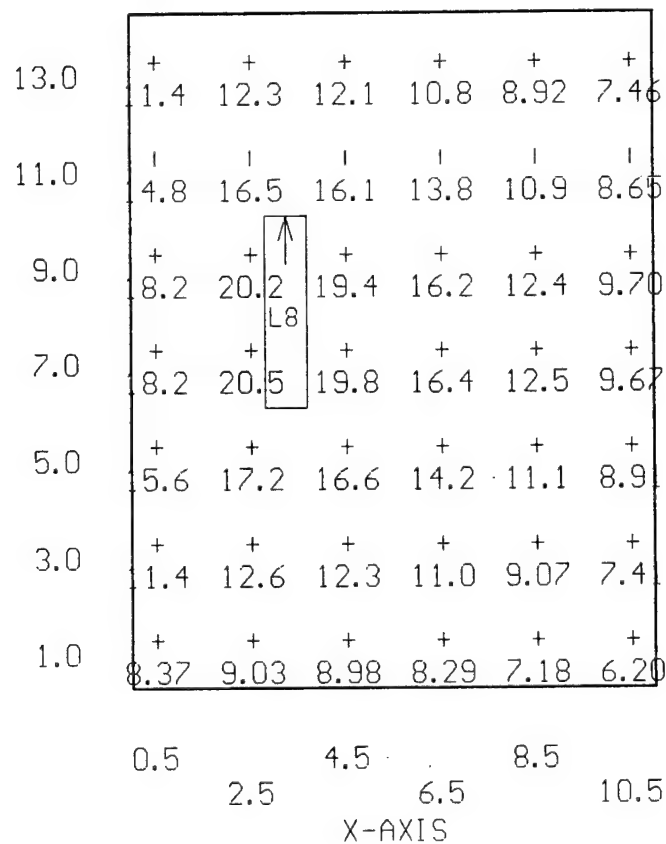


USI's LITE*PRO V2.27E Point-By-Point Numeric Output 14:00 14-Mar-95
 PROJECT: 63-100 AREA: MEN'S RR-4 GRID: Ceiling
 Values are FC, SCALE: 1 IN= 4.0FT, HORZ GRID (U), HORZ CALC, Z= 2.5
 Computed in accordance with IES recommendations

+ MIN=6.20 MAX=20.5 AVE=12.7 AVE/MIN= 2.05 MAX/MIN= 3.31

L8 <1> = 10331 COLUMBIA CSR240-PAF-EOCT, <2> F032/35K, LLF= 0.66

Y-AXIS

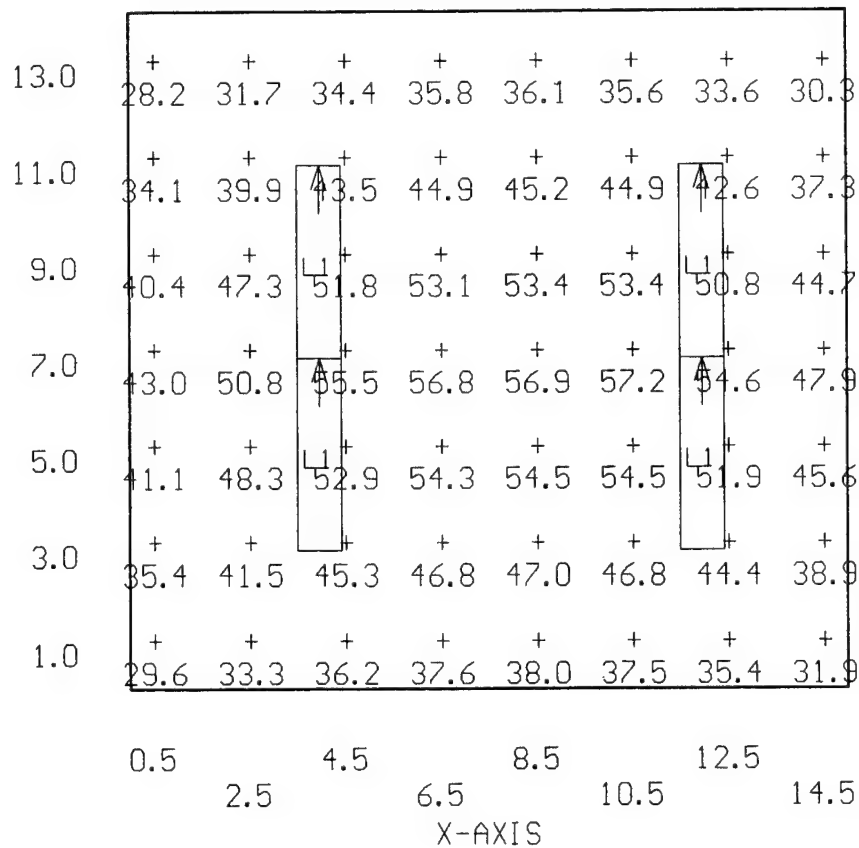


USI's LITE*PRO V2.27E Point-By-Point Numeric Output 15:48 5-Jan-95
 PROJECT: 63-100 AREA: CHANGE ROOM GRID: Ceiling
 Values are FC, SCALE: 1 IN= 4.0FT, HORZ GRID (U), HORZ CALC, Z= 2.5
 Computed in accordance with IES recommendations

+ MIN=28.2 MAX=57.2 AVE=43.6 AVE/MIN= 1.55 MAX/MIN= 2.03

L1 <4> = K7990 COLUMBIA CSR240, <2> F40CW, LLF= 0.68

Y-AXIS



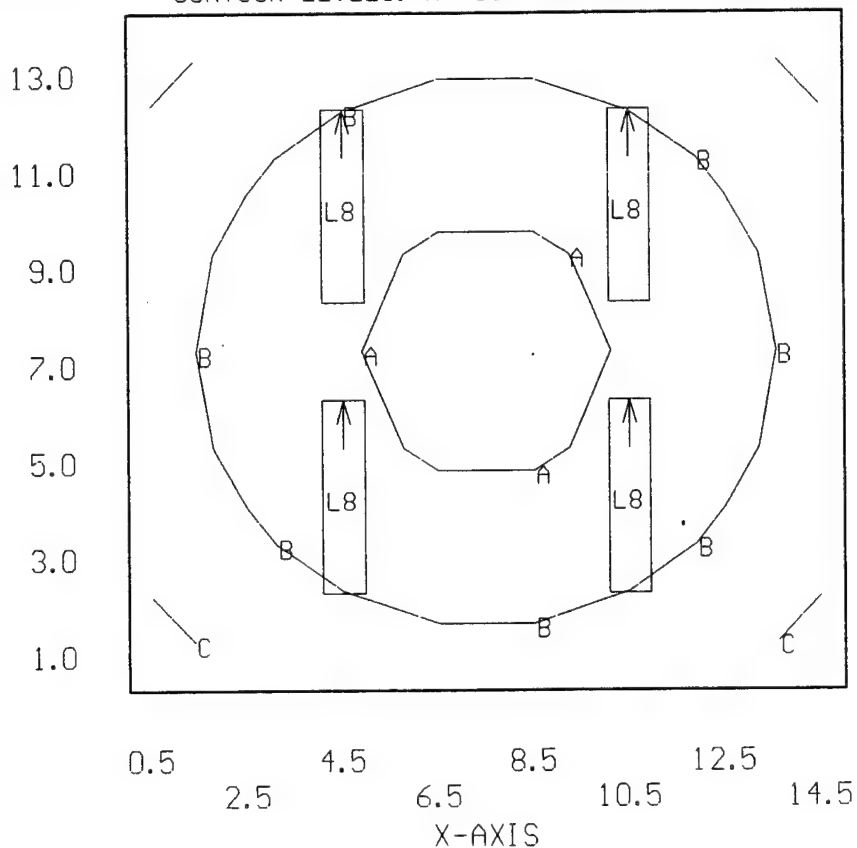
USI's LITE*PRO V2.27E Point-By-Point Numeric Output 14:05 14-Mar-95
 PROJECT: 63-100 AREA: CHANGE ROOM-N GRID: Ceiling
 Values are FC, SCALE: 1 IN= 4.0FT, HORZ GRID (U), HORZ CALC, Z= 2.5
 Computed in accordance with IES recommendations

+ MIN=28.1 MAX=52.7 AVE=40.3 AVE/MIN= 1.43 MAX/MIN= 1.88

L8 <4> = 10331 COLUMBIA CSR240-PAF-E0CT, (2) F032/35K, LLF= 0.66

Y-AXIS

CONTOUR LEVELS: A= 50.0 B= 40.0 C= 30.0 D= 20.0 E= 10.0



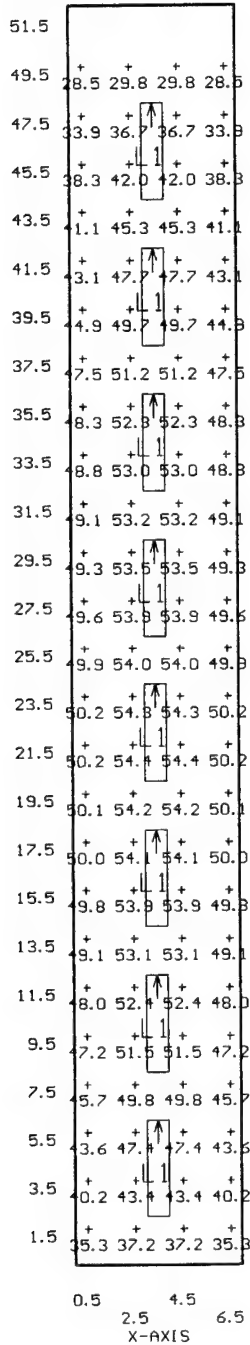
USI's LITE*PRO V2.27E Point-By-Point Numeric Output 15:56 5-Jan-95
 PROJECT: 63-100 AREA: HALL 2 GRID: Ceiling
 Values are FC, SCALE: 1 IN= 8.0FT, HORZ GRID (U), HORZ CALC, Z= 2.5
 Computed in accordance with IES recommendations

Page 1/1

+ MIN=28.5 MAX=54.4 AVE=47.2 AVE/MIN= 1.66 MAX/MIN= 1.91

L1 <8> = K7990 COLUMBIA CSR240, <2> F40CW, LLF= 0.68

Y-AXIS

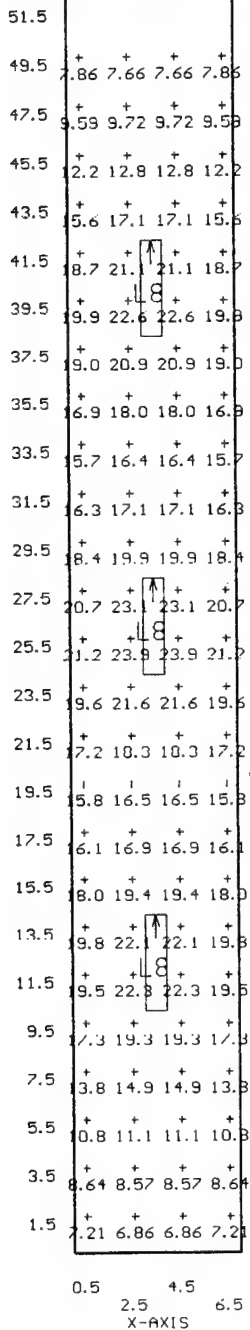


USI's LITE*PRO V2.27C Point By Point Numeric Output 14:08 11 Mar 95 Page 1/1
 PROJECT: 63-100 AREA: HALL 2-N GRID: Ceiling
 Values are FC, SCALE: 1 IN= 8.0FT, HORZ GRID (U), HORZ CALC, Z= 2.5
 Computed in accordance with IES recommendations

+ MIN=6.86 MAX=23.9 AVE=16.5 AVE/MIN= 2.40 MAX/MIN= 3.48

L8 <3> = 10331 COLUMBIA CSR240-PAF-EOCT, (2) F032/35K, LLF= 0.66

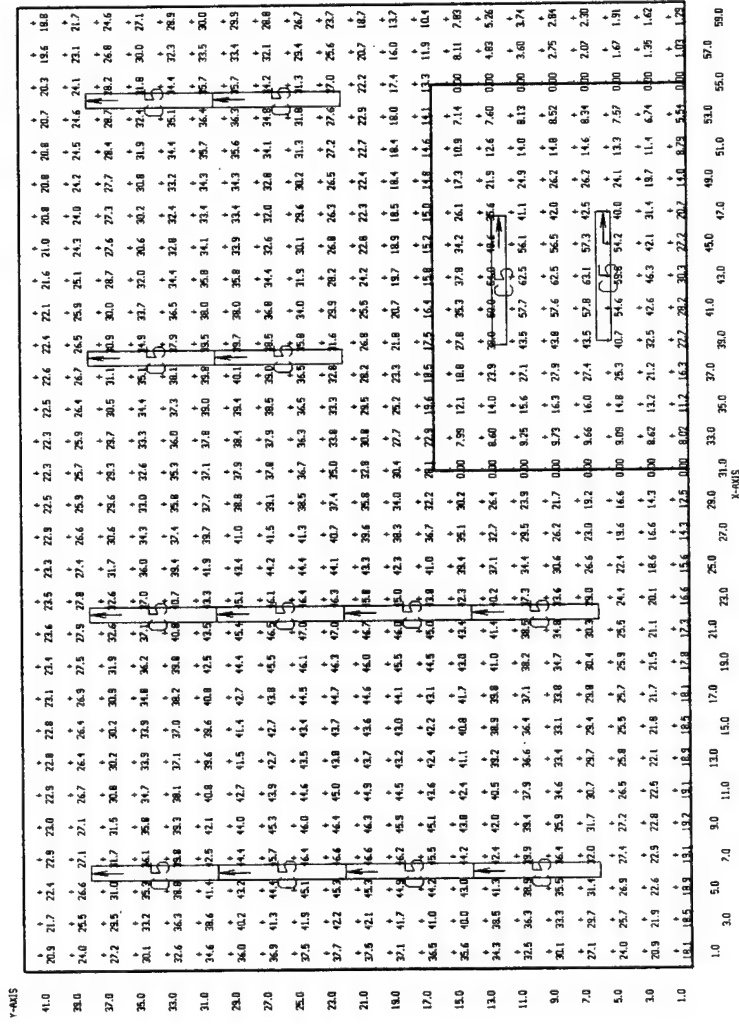
Y-AXIS



USI's LITE*PRO V2.27E Point-By-Point Numeric Output 17:25 5-Jan-95
 PROJECT: 63-100 AREA: STORAGE/BREAK GRID: Ceiling
 Values are FC, SCALE: 1 IN= 12.0FT, HORZ GRID (U), HORZ CALC, Z= 2.5
 Computed in accordance with IES recommendations

+ MIN=0.00 MAX=63.1 AVE=30.3 AVE/MIN=N/A MAX/MIN=N/A

C5 <14> = K7993 COLUMBIA CSR296, (2) F96T12/CW/WM, LLF= 0.69

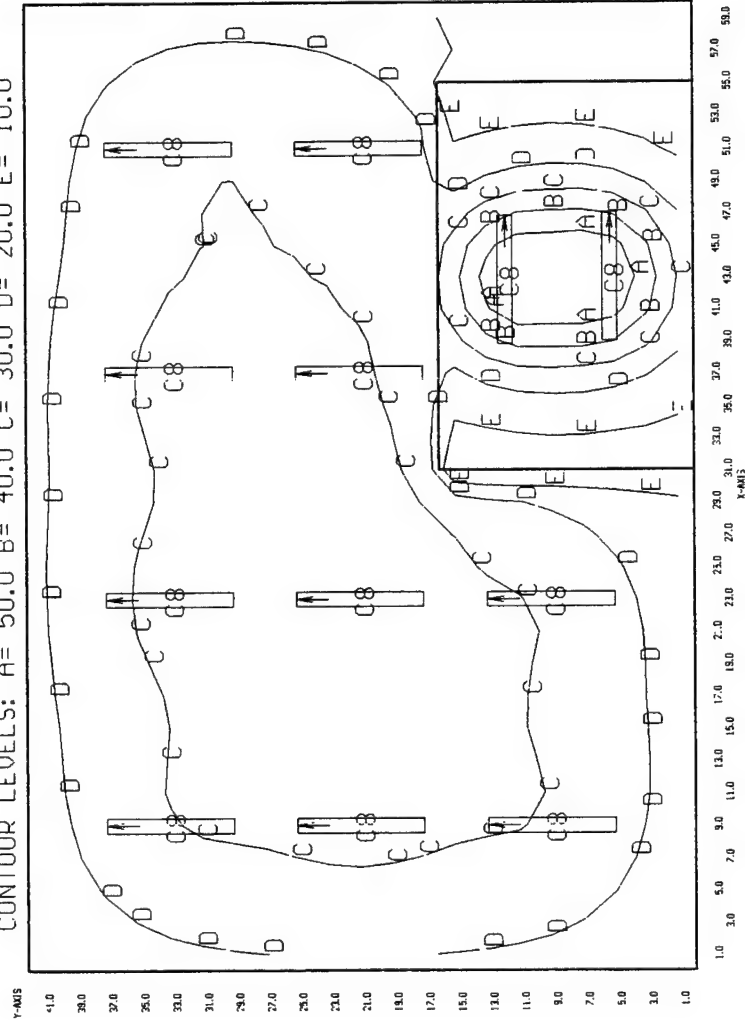


USI's LITE*PRO V2.27E Point-By-Point: Numeric Output 14:26 14-Mar-95
 PROJECT: 63-100 AREA: STORAGE/BREAK-N GRID: Ceiling
 Values are FC, SCALE: 1 IN= 12.0FT, HORZ GRID (U), HORZ CALC, Z= 2.5
 Computed in accordance with IES recommendations

+ MIN=0.00 MAX=62.0 AVE=25.1 AVE/MIN=N/A MAX/MIN=N/A

C8 <12> = K7993 COLUMBIA CSR296, (2) F096/735, L_F= 0.66

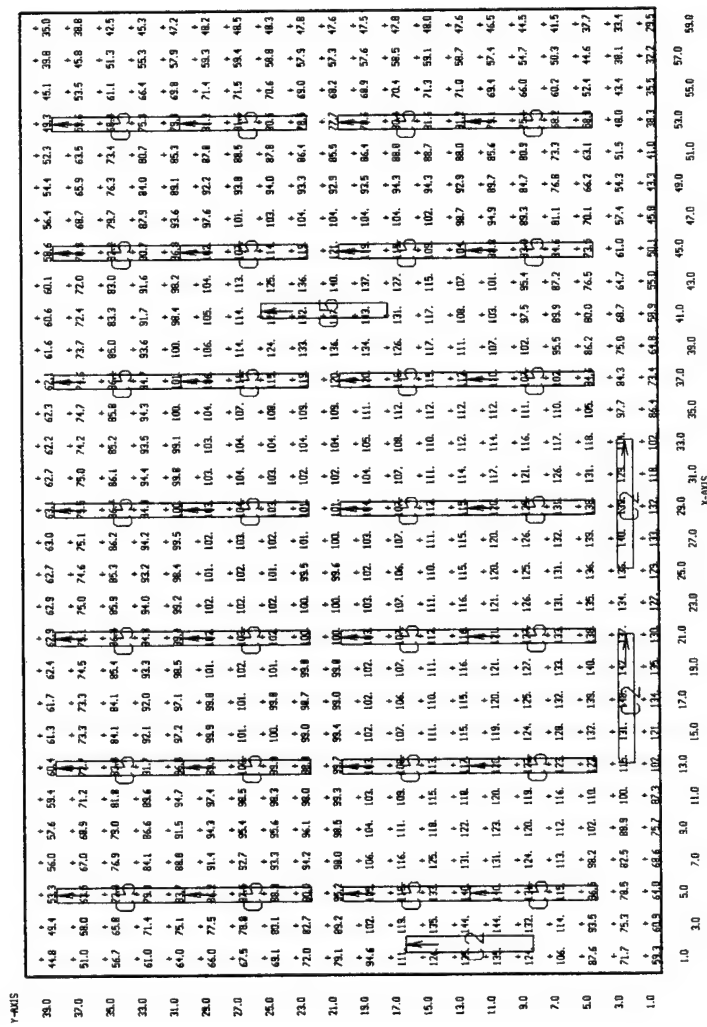
CONTOUR LEVELS: A= 50.0 B= 40.0 C= 30.0 D= 20.0 E= 10.0



USI's LITE*PRO V2.27E Point-By-Point Numeric Output 16:29 5-Jan-95
 PROJECT: 63-100 AREA: CLEAN ROOM GRID: Ceiling
 Values are FC, SCALE: 1 IN= 12.0FT, HORZ GRID (U), HORZ CALC, Z= 2.5
 Computed in accordance with IES recommendations

+ MIN=29.5 MAX=147. AVE=93.5 AVE/MIN= 3.17 MAX/MIN= 4.99

C2 <3> = K7983M COLUMBIA KP496, <4> F96T12/CW/WM, LLF= 0.67
 C5 <29> = K7993 COLUMBIA CSR296, <2> F96T12/CW/WM, LLF= 0.69

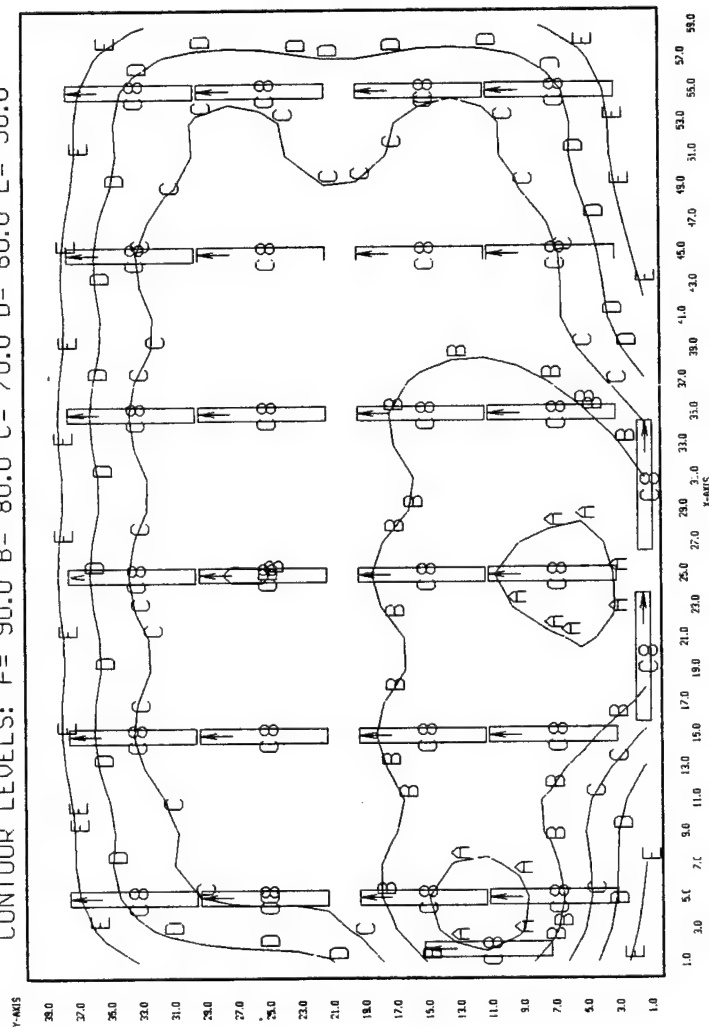


USI's LITE*PRO V2.27E Point-By-Point Numeric Output 14:42 14-Mar-95
 PROJECT: 63-100 AREA: CLEAN ROOM-N GRID: Ceiling
 Values are FC, SCALE: IN= 12.0FT, HORZ GRID (U), HORZ CALC, Z= 2.5
 Computed in accordance with IES recommendations

+ MIN=33.6 MAX=95.6 AVE=70.1 AVE/MIN= 2.09 MAX/MIN= 2.84

C8 <27> = K7993 COLUMBIA CSR296, <2> F096/735, LLF= 0.66

CONTOUR LEVELS: F= 90.0 B= 80.0 C= 70.0 D= 60.0 E= 50.0



Bldg 63-110 Summary

Present System				Replacement System			
Fixture Type	Watts/ Fixture	Number Fixtures	Total Watts	Fixture Type	Watts/ Fixture	Number Fixtures	Total Watts
A1	83	7	581	A8	59	7	413
B1	171	2	342	C8	105	9	945
C6	316	9	2,844	F3	86	6	516
F	166	62	10,292	F8	59	54	3,186
Totals		80	14,059	Totals		76	5,060

63-110 Schedule

Reynolds, Smith & Hills, Inc.
4651 Salisbury Road
Jacksonville, FL 32256
Buildings Engineering

Luminaire Fixture Schedule
Generated by LitePro V2.27E
Provided and supported by USI Lighting, Inc.
Filename: 63-110 Type: Indoor

Luminaire Fixture Schedule / **PRESENT**

Project name: Lighting Survey - Pine Bluff Arsenal
Prepared for: Corps of Engineers
Prepared by: C. Warren

Project #6941331
Date: 18-Jan-95
UPD: 1.4W/Sq.Ft

TYPE	DESCRIPTION	LAMP/BALLAST	V/W	QTY	REMARKS
A1	15"X4'2L CEILING MT.WRAPAROUND LENS- PRISMATIC W/ GLOW ENDS COLUMBIA WCW240-A	F40CW ESB	000 - 83	7	
B1	15"X4'4L CEILING MT.WRAPAROUND LENS- PRISMATIC W/ GLOW ENDS COLUMBIA WCW440-A	F40CW ESB	000 - 171	2	
C6	8'4L APER.PORCELAIN INDUSTRIAL OPEN BOTTOM- NO SHIELDING COLUMBIA KP496	F96T12/CW ESB	000 - 316	9	
F	2X4 4L FLUSH STATIC TROFFER LENS- .125" POLARIZED PATT.12 COLUMBIA 4PS2*-87-244	F40CW ESB	000 - 166	62	

NOTES:

63-110 Schedule

Reynolds, Smith & Hills, Inc.
4651 Salisbury Road
Jacksonville, FL 32256
Buildings Engineering

Luminaire Fixture Schedule
Generated by LitePro V2.27E
Provided and supported by USI Lighting, Inc.
Filename: 63-110 Type: Indoor

Luminaire Fixture Schedule /**PROPOSED**

Project name: Lighting Survey - Pine Bluff Arsenal
Prepared for: Corps of Engineers
Prepared by: C. Warren

Project #6941331
Date: 14-Mar-95
UPD: 0.5W/Sq.Ft

TYPE	DESCRIPTION	LAMP/BALLAST	V/W	QTY	REMARKS
A8	15"X4'2L CEILING MT.WRAPAROUND LENS- PRISMATIC W/ GLOW ENDS COLUMBIA WCW240-A	FO32/35K ESB	000 - 59	7	
C8	11"X8' 2L INDUSTRIAL OPEN BOTTOM- NO SHIELDING COLUMBIA CSR296	FO96/735 EOCT	000 - 105	9	
F3	2X4 3L FLUSH STATIC TROFFER LENS-PRISMATIC ACRYLIC PATT-19 COLUMBIA T84PS2*-84-243-3EOCT	FO32/31K EOCT	000 - 86	6	
F8	2X4 2L FLUSH STATIC TROFFER LENS-PRISMATIC ACRYLIC PATT-19 COLUMBIA T84PS2*-84-242-2EOCT	FO32/31K EOCT	000 - 59	54	

NOTES:

Reynolds, Smith & Hills, Inc.
 4651 Salisbury Road
 Jacksonville, FL 32256
 Buildings Engineering

Project Area Summary
 Generated by LitePro V2.27E
 Provided and supported by USI Lighting, Inc.
 Filename: 63-110 Type: Indoor

Project Area Summary

Project name: Lighting Survey - Pine Bluff Arsenal
 Prepared for: Corps of Engineers
 Prepared by: C. Warren

Project #6941331
 Date: 14-Mar-95
 UPD: 1.0W/Sq.Ft

AREA NAME	DIMENSIONS	LUMINAIRES	W/SQ.FT	QTY
LAYOUT 1	82x64x9Ft	(3) Type A1 (45) Type F	1.5	1
LAYOUT 1-N	82x64x9Ft	(3) Type A8 (45) Type F8	0.5	1
LAYOUT 2	43x64x11Ft	(9) Type C6	1.0	1
LAYOUT 2-N	43x64x11Ft	(9) Type C8	0.3	1
BONDING	28x18x9Ft	(6) Type F	2.0	1
BONDING-N	28x18x9Ft	(6) Type F3	1.0	1
STORAGE A	15x11x9Ft	(2) Type B1	2.1	1
STORAGE A-N	15x11x9Ft	(1) Type A8	0.4	1
SMOKE BREAK	13x13x8Ft	(3) Type F	3.1	1
SMOKE BREAK-N	13x13x8Ft	(2) Type F8	0.7	1
BREAK ROOM	15x20x8Ft	(3) Type F	1.7	1
BREAK ROOM-N	15x20x8Ft	(2) Type F8	0.4	1
RESTROOMS	10x10x8Ft	(1) Type A1	0.8	2
RESTROOMS-N	10x10x8Ft	(1) Type A8	0.6	2
STORAGE B	7x12x8Ft	(2) Type A1	2.0	1
STORAGE B-N	7x12x8Ft	(1) Type A8	0.7	1
OFFICE	8x12x8Ft	(2) Type F	3.5	1
OFFICE-N	8x12x8Ft	(2) Type F8	1.2	1

Page 2
63-110 Areas

HALLWAYS

19x27x8Ft

(3) Type F

1.0

1

HALLWAYS-N

19x27x8Ft

(3) Type F8

0.3

1

NOTES:

63-110 Calculations

Reynolds, Smith & Hills, Inc.
 4651 Salisbury Road
 Jacksonville, FL 32256
 Buildings Engineering

Project Calculation Summary
 Generated by LitePro V2.27E
 Provided and supported by USI Lighting, Inc.
 Filename: 63-110 Type: Indoor

Project Calculation Summary

Project name: Lighting Survey - Pine Bluff Arsenal
 Prepared for: Corps of Engineers
 Prepared by: C. Warren

Project #6941331
 Date: 14-Mar-95
 UPD: 1.0W/Sq.Ft

AREA NAME	DIMENSIONS	GRID NAME	AVE	MAX	MIN
LAYOUT 1	82x64x9Ft	Ceiling	<+> 45.3	68.8	0.0
LAYOUT 1-N	82x64x9Ft	Ceiling	<+> 31.0	43.8	0.0
LAYOUT 2	43x64x11Ft	Ceiling	<+> 42.0	79.8	0.0
LAYOUT 2-N	43x64x11Ft	Ceiling	<+> 22.1	40.5	0.0
BONDING	28x18x9Ft	Ceiling	<+> 50.6	63.6	37.8
BONDING-N	28x18x9Ft	Ceiling	<+> 47.9	58.2	35.7
STORAGE A	15x11x9Ft	Ceiling	<+> 59.4	105.9	26.2
STORAGE A-N	15x11x9Ft	Ceiling	<+> 15.1	28.4	6.8
SMOKE BREAK	13x13x8Ft	Ceiling	<+> 74.2	103.5	21.0
SMOKE BREAK-N	13x13x8Ft	Ceiling	<+> 37.0	60.1	17.3
BREAK ROOM	15x20x8Ft	Ceiling	<+> 45.4	80.8	4.7
BREAK ROOM-N	15x20x8Ft	Ceiling	<+> 21.8	57.5	3.0
RESTROOMS	10x10x8Ft	Ceiling	<+> 20.6	37.2	7.3
RESTROOMS-N	10x10x8Ft	Ceiling	<+> 18.4	33.2	6.5
STORAGE B	7x12x8Ft	Ceiling	<+> 42.1	52.4	32.4
STORAGE B-N	7x12x8Ft	Ceiling	<+> 20.5	31.6	11.4
OFFICE	8x12x8Ft	Ceiling	<+> 71.8	90.0	53.3
OFFICE-N	8x12x8Ft	Ceiling	<+> 46.0	59.7	33.9

Page 2

63-110 Calculations

HALLWAYS	19x27x8Ft	Ceiling	<+>	14.7	77.4	0.0
HALLWAYS-N	19x27x8Ft	Ceiling	<+>	9.3	48.4	0.0

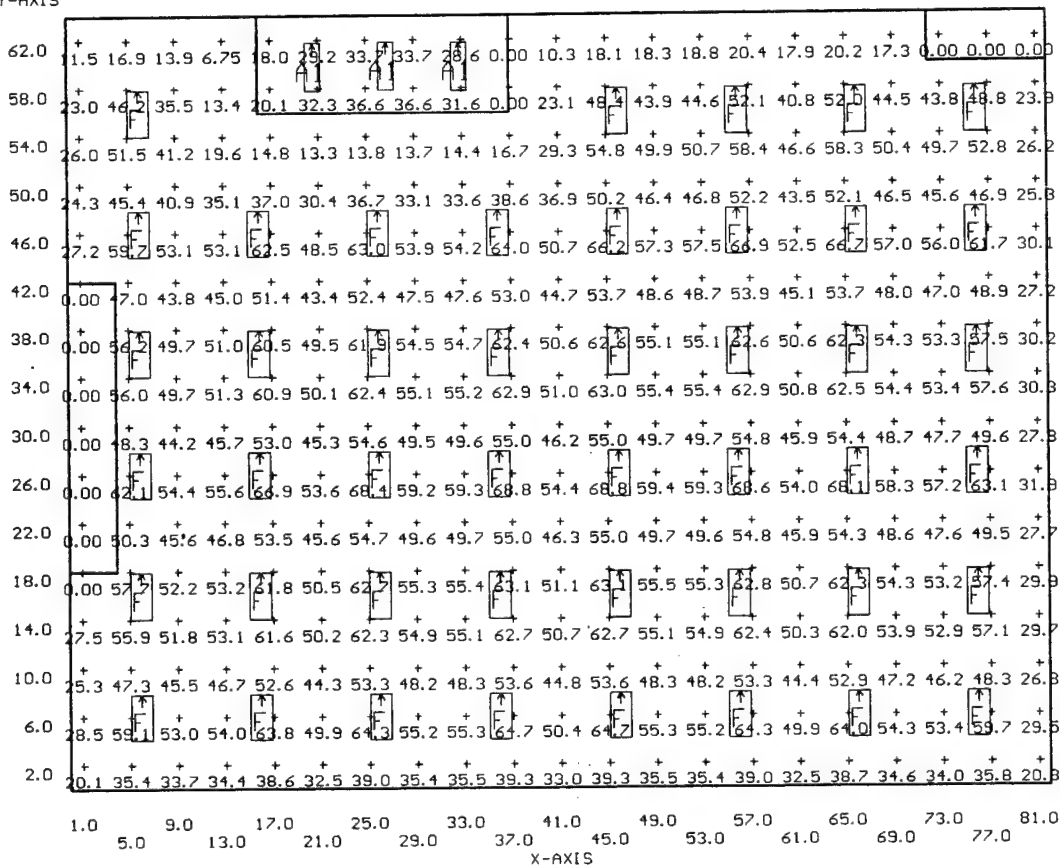
NOTES:

USI's LITE*PRO V2.27E Point-By-Point Numeric Output 12:05 18-Jan-95
 PROJECT: 63-110 AREA: LAYOUT 1 GRID: Ceiling
 Values are FC, SCALE: 1 IN= 16.0FT, HORZ GRID (U), HORZ CALC, Z= 2.5
 Computed in accordance with IES recommendations

+ MIN=0.00 MAX=68.8 AVE=45.3 AVE/MIN=N/A MAX/MIN=N/A

A1 <3> = K9604 COLUMBIA WCW240-A, (2) F40CW, LLF= 0.68
 F <45> = 9753 COLUMBIA 4PS2*-87-244, (4) F40CW, LLF= 0.68

Y-AXIS

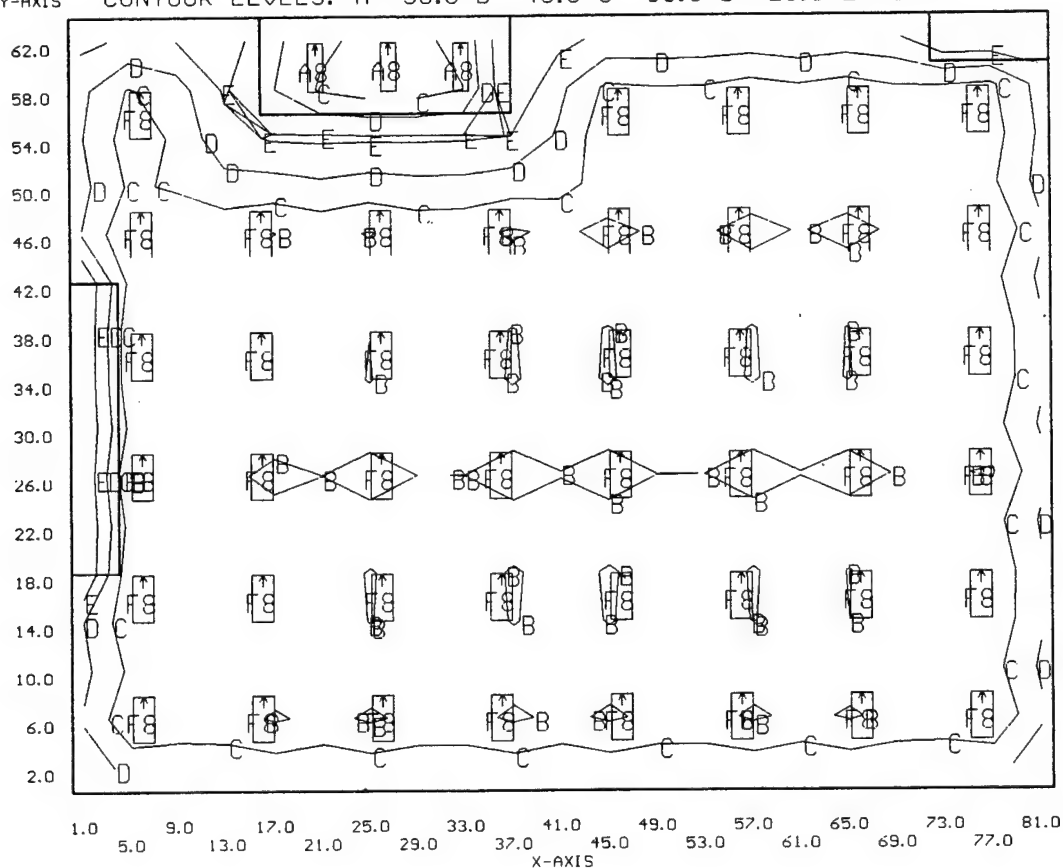


USI's LITE*PRO V2.27E Point-By-Point Numeric Output 15:19 14-Mar-95
 PROJECT: 63-110 AREA: LAYOUT 1-N GRID: Ceiling
 Values are FC, SCALE: 1 IN= 16.0FT, HORZ GRID (U), HORZ CALC, Z= 2.5
 Computed in accordance with IES recommendations

+ MIN=0.00 MAX=43.8 AVE=31.0 AVE/MIN=N/A MAX/MIN=N/A

A8 <3> = K9604 COLUMBIA WCW240-A, (2) F032/35K, LLF= 0.70
 F8 <45> = 9868 COLUMBIA T84PS2*-84-242-2EOCT, (2) F032/31K, LLF= 0.74

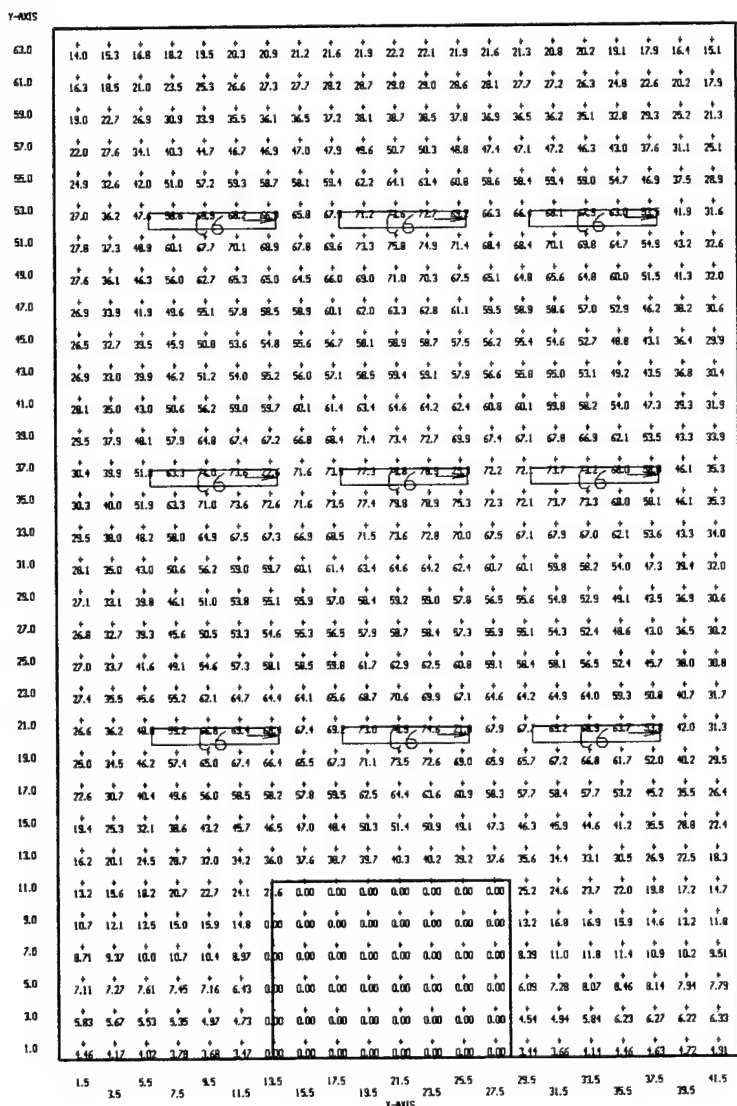
Y-AXIS CONTOUR LEVELS: A= 50.0 B= 40.0 C= 30.0 D= 20.0 E= 10.0



USI's LITE*PRO V2.27E Point-By-Point Numeric Output 12:57 18-Jan-95
 PROJECT: 63-110 AREA: LAYOUT 2 GRID: Ceiling
 Values are FC, SCALE: 1 IN= 12.0FT, HORZ GRID (U), HORZ CALC, Z= 2.5
 Computed in accordance with IES recommendations

+ MIN=0.00 MAX=79.8 AVE=42.0 AVE/MIN=N/A MAX/MIN=N/A

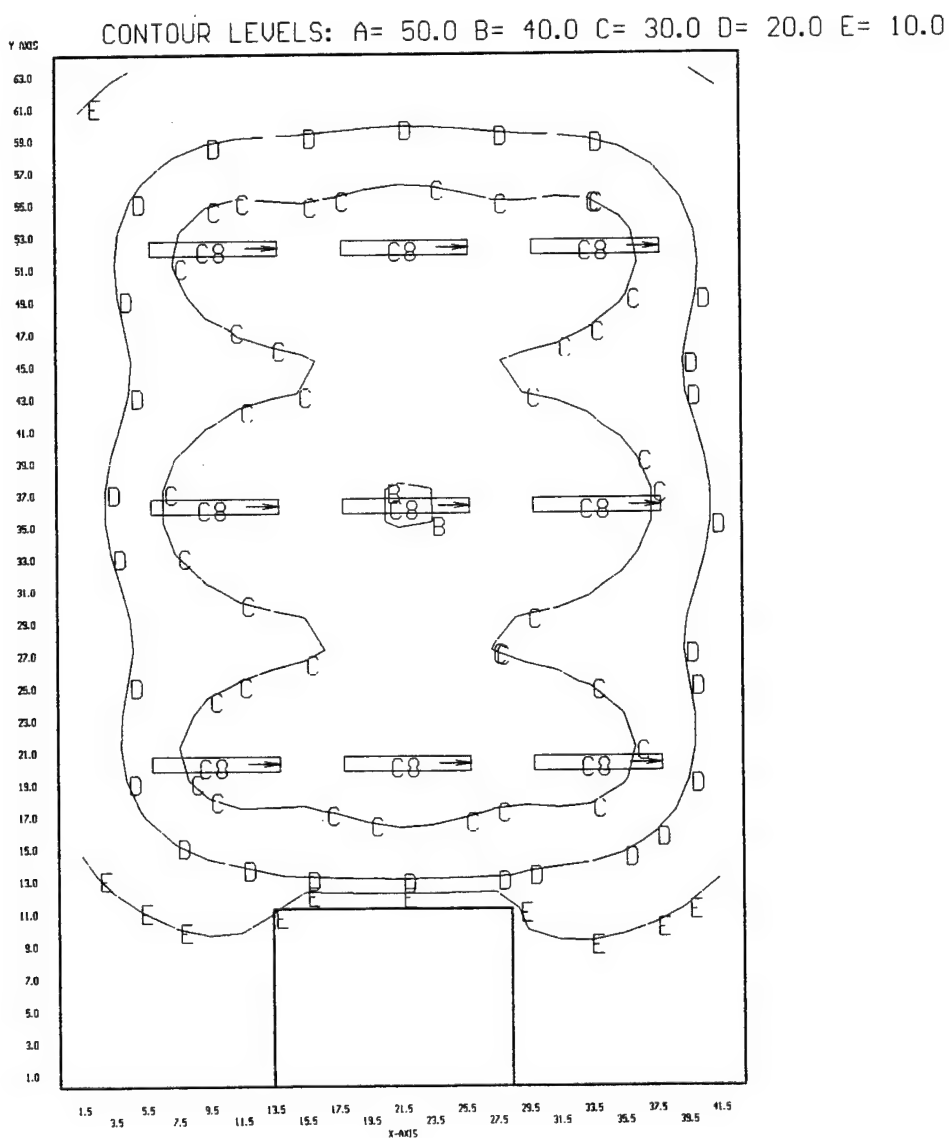
C6 <9> = K7983M COLUMBIA KP496, <4> F96T12/CW, LLF= 0.67



USI's LITE*PRO V2.27E Point-By-Point Numeric Output 15:25 14-Mar-95
 PROJECT: 63-110 AREA: LAYOUT 2-N GRID: Ceiling
 Values are FC, SCALE: 1 IN= 12.0FT, HORZ GRID (U), HORZ CALC, Z= 2.5
 Computed in accordance with IES recommendations

+ MIN=0.00 MAX=40.5 AVE=22.1 AVE/MIN=N/A MAX/MIN=N/A

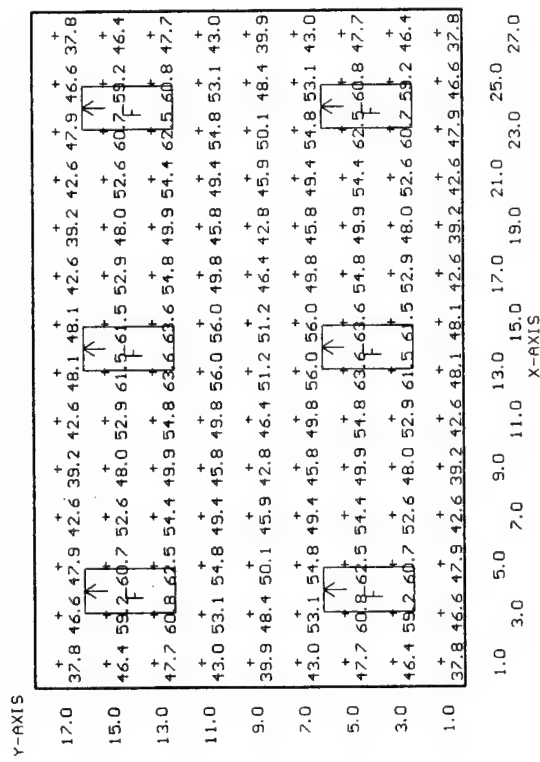
C8 <9> = K7993 COLUMBIA CSR296, <2> F096/735, LLF= 0.69



USI's LITE*PRO V2.27E Point-By-Point Numeric Output 13:04 18-Jan-95
PROJECT: 63-110 AREA: BONDING GRID: Ceiling
Values are FC, SCALE: 1 IN= 8.0FT, HORZ GRID (U), HORZ CALC, Z= 2.5
Computed in accordance with IES recommendations

+ MIN=37.8	MAX=63.6	AVE=50.6	AVE/MIN=	1.34	MAX/MIN=	1.68
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F < 6> = 9753 COLUMBIA 4PS2*-87-244, <4> F40CW, LLF= 0.68

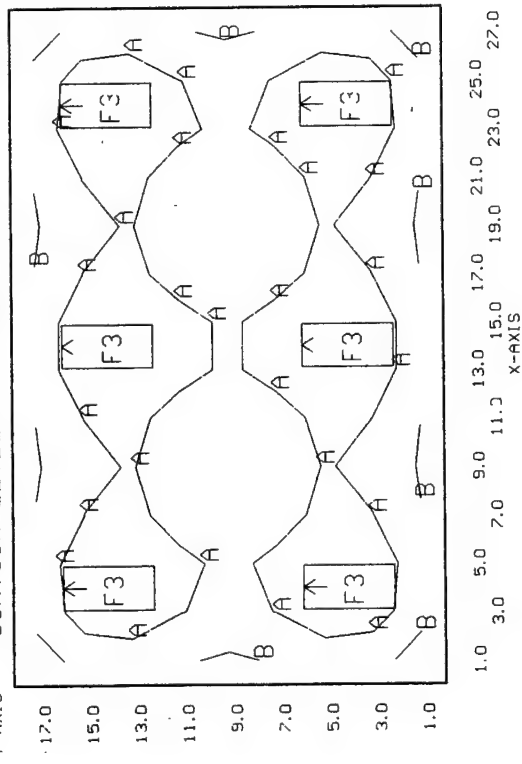


USI's LITE*PRO V2.27E Point-By-Point Numeric Output 15:35 14-Mar-95
 PROJECT: 63-110 AREA: BONDING-N GRID: Ceiling
 Values are FC, SCALE: 1 IN= 8.0FT, HORZ GRID (U), HORZ CALC, Z= 2.5
 Computed in accordance with IES recommendations

+ MIN=35.7 MAX=58.2 AVE=47.9 AVE/MIN= 1.34 MAX/MIN= 1.63

F3 <6> = A972C COLUMBIA T84PS2*-84-243-3E0CT, (3) F032/31K, LLF= 0.70

CONTOUR LEJE-S: A= 50.0 B= 40.0 C= 30.0 D= 20.0 E= 10.0



USI's LITE*PRO V2.27E Point-By-Point Numeric Output 13:12 18-Jan-95
 PROJECT: 63-110 AREA: STORAGE A GRID: Ceiling
 Values are FC, SCALE: 1 IN= 4.0FT, HORZ GRID (U), HORZ CALC, Z= 2.5
 Computed in accordance with IES recommendations

+ MIN=26.2 MAX=106. AVE=59.4 AVE/MIN= 2.27 MAX/MIN= 4.04

B1 <2> = K9708 COLUMBIA WCU440-A, <4> F40CW, LLF= 0.68

Y-AXIS

9.5	+	26.2	+	43.3	+	63.4	+	73.0	+	63.4	+	43.4	+	26.2	+
7.5	+	31.7	+	55.4	+	83.8	+	97.6	→	85.9	+	55.5	+	31.8	+
5.5	+	35.2	+	61.3	+	91.3	+	106.	+	91.5	+	61.4	+	35.3	+
3.5	+	32.7	+	57.4	+	84.6	+	101.8	→	86.8	+	57.6	+	32.9	+
1.5	+	27.4	+	46.0	+	68.3	+	79.1	+	68.5	+	46.2	+	27.5	+

1.5 3.5 5.5 7.5 9.5 11.5 13.5
 X-AXIS

USI's LITE*PRO V2.27E Point-By-Point Numeric Output 15:38 14-Mar-95
 PROJECT: 63-110 AREA: STORAGE A-N GRID: Ceiling
 Values are FC, SCALE: IN= 4.0FT, HORZ GRID (U), HORZ CALC, Z= 2.5
 Computed in accordance with IES recommendations

+ MIN=6.82 MAX=28.4 AVE=15.1 AVE/MIN= 2.21 MAX/MIN= 4.17

A8 <1> = K9604 COLUMBIA WCW240-A, (2) F032/35K, LLF= 0.70

Y-AXIS

9.5	+	6.82	+	10.8	+	15.1	+	17.0	+	15.3	+	11.0	+	6.97
7.5	+	8.65	+	14.5	+	21.3	+	24.8	+	21.6	+	14.7	+	8.86
5.5	+	9.24	+	15.8	+	24.1	+	28.4	→	24.4	+	16.1	+	9.47
3.5	+	8.78	+	14.7	+	21.8	+	25.4	+	22.1	+	15.0	+	8.99
1.5	+	7.03	+	11.2	+	15.8	+	17.8	+	15.9	+	11.4	+	7.18

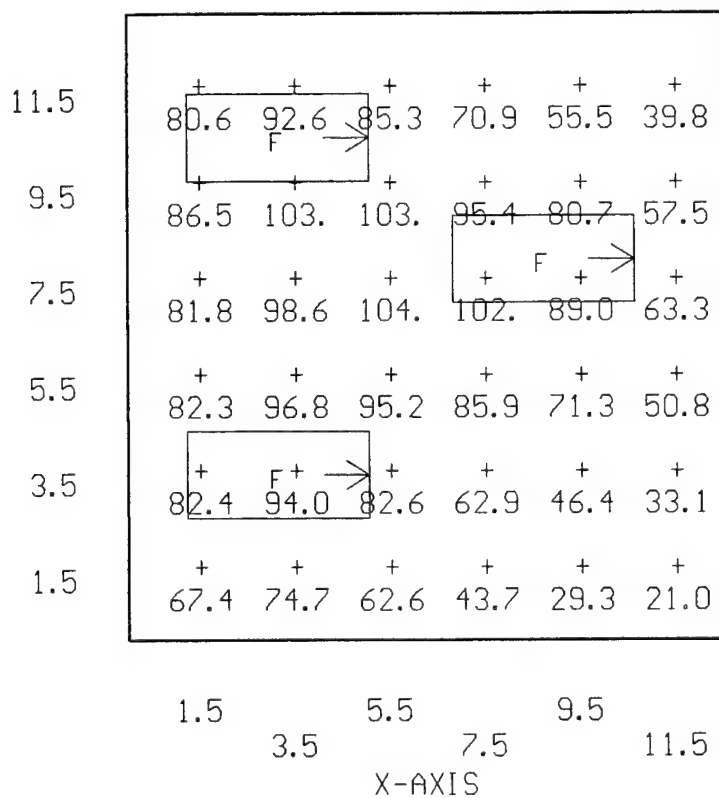
1.5 3.5 5.5 7.5 9.5 11.5 13.5
 X-AXIS

USI's LITE*PRO V2.27E Point-By-Point Numeric Output 13:18 18-Jan-95
 PROJECT: 63-110 AREA: SMOKE BREAK GRID: Ceiling
 Values are FC, SCALE: 1 IN= 4.0FT, HORZ GRID (U), HORZ CALC, Z= 2.5
 Computed in accordance with IES recommendations

+ MIN=21.0 MAX=104. AVE=74.2 AVE/MIN= 3.54 MAX/MIN= 4.93

F <3> = 9753 COLUMBIA 4PS2*-87-244, <4> F40CW, LLF= 0.68

Y-AXIS

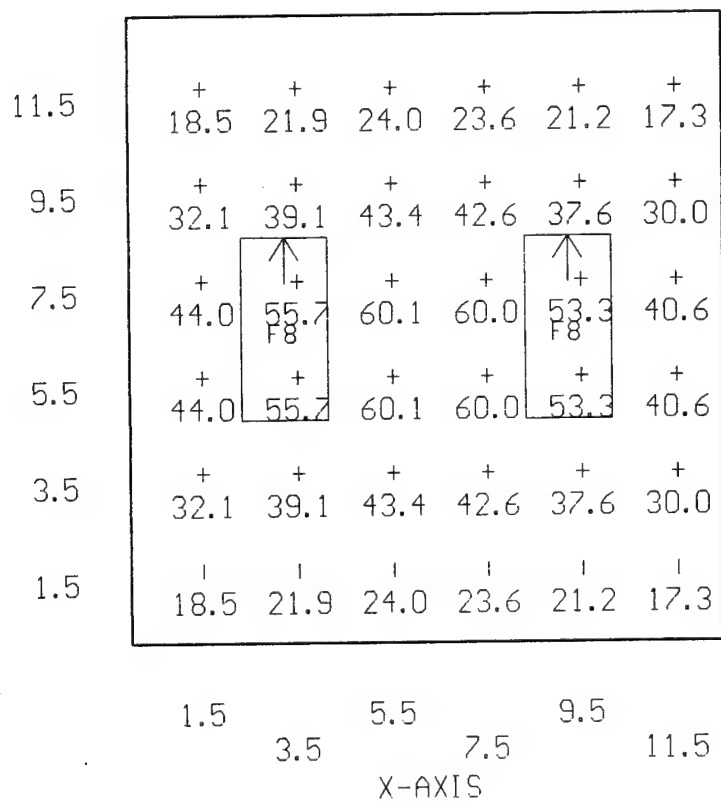


USI's LITE*PRO V2.27E Point-By-Point Numeric Output 15:41 14-Mar-95
 PROJECT: 63-110 AREA: SMOKE BREAK-N GRID: Ceiling
 Values are FC, SCALE: 1 IN= 4.0FT, HORZ GRID (U), HORZ CALC, Z= 2.5
 Computed in accordance with IES recommendations

+ MIN=17.3 MAX=60.1 AVE=37.0 AVE/MIN= 2.14 MAX/MIN= 3.47

F8 <2> = 9868 COLUMBIA T84PS2*-84-242-2EOCT, <2> F032/31K, LLF= 0.74

Y-AXIS

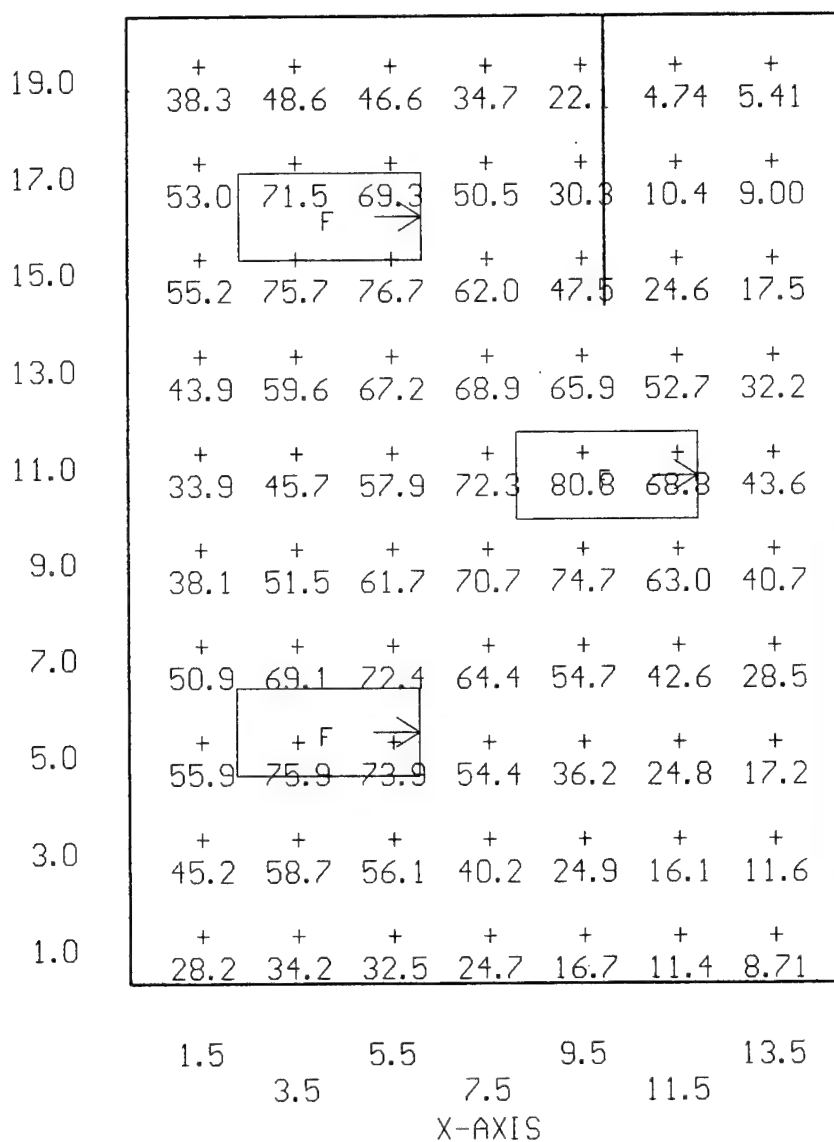


USI's LITE*PRO V2.27E Point-By-Point Numeric Output 13:32 18-Jan-95
 PROJECT: 63-110 AREA: BREAK ROOM GRID: Ceiling
 Values are FC, SCALE: 1 IN= 4.0FT, HORZ GRID (U), HORZ CALC, Z= 2.5
 Computed in accordance with IES recommendations

+ MIN=4.74 MAX=80.8 AVE=45.4 AVE/MIN= 9.58 MAX/MIN= 17.06

F <3> = 9753 COLUMBIA 4PS2*-87-244, (4) F40CW, LLF= 0.68

Y-AXIS

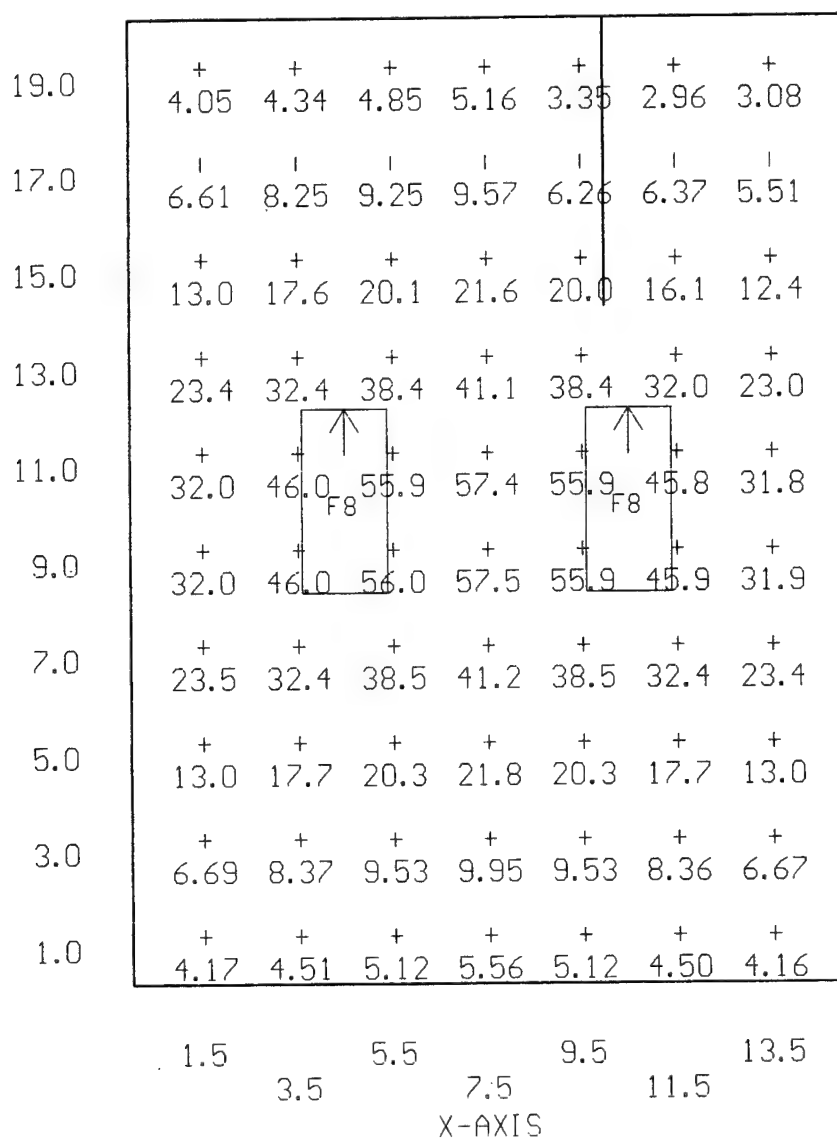


USI's LITE*PRO V2.27E Point-By-Point Numeric Output 15:44 14-Mar-95
 PROJECT: 63-110 AREA: BREAK ROOM-N GRID: Ceiling
 Values are FC, SCALE: 1 IN= 4.0FT, HORZ GRID (U), HORZ CALC, Z= 2.5
 Computed in accordance with IES recommendations

+ MIN=2.96 MAX=57.5 AVE=21.8 AVE/MIN= 7.35 MAX/MIN= 19.39

F8 (2) = 9868 COLUMBIA T84PS2*-84-242-2EOCT, (2) F032/31K, LLF= 0.74

• Y-AXIS



USI's LITE*PRO V2.27E Point-By-Point Numeric Output 13:37 18-Jan-95
 PROJECT: 63-110 AREA: RESTROOMS GRID: Ceiling
 Values are FC, SCALE: 1 IN= 4.0FT, HORZ GRID (U), HORZ CALC, Z= 2.5
 Computed in accordance with IES recommendations

+ MIN=7.27 MAX=37.2 AVE=20.6 AVE/MIN= 2.84 MAX/MIN= 5.12

A1 <2> = K9604 COLUMBIA WCW240-A, <2> F40CW, LLF= 0.68

Y-AXIS

9.0	+	19.4	+	20.1	+	17.5	+	12.1	+	7.27
7.0	+	28.9	+	30.8	+	25.7	+	16.8	+	9.23
5.0	+	34.9	+	37.2	+	30.3	+	19.1	+	10.3
3.0	+	29.9	+	31.9	+	26.5	+	17.2	+	9.42
1.0	+	20.6	+	21.3	+	18.5	+	12.6	+	7.49

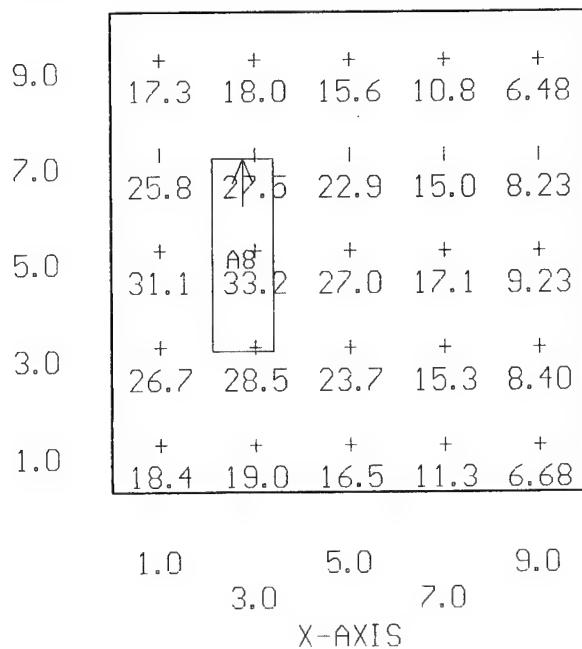
1.0 3.0 5.0 7.0 9.0
 X-AXIS

USI's LITE*PRO V2.27E Point-By-Point Numeric Output 15:46 14-Mar-95
 PROJECT: 63-110 AREA: RESTROOMS-N GRID: Ceiling
 Values are FC, SCALE: 1 IN= 4.0FT, HORZ GRID (U), HORZ CALC, Z= 2.5
 Computed in accordance with IES recommendations

+ MIN=6.48 MAX=33.2 AVE=18.4 AVE/MIN= 2.84 MAX/MIN= 5.12

A8 <2> = K9604 COLUMBIA WCW240-A, <2> F032/35K, LLF= 0.70

Y-AXIS

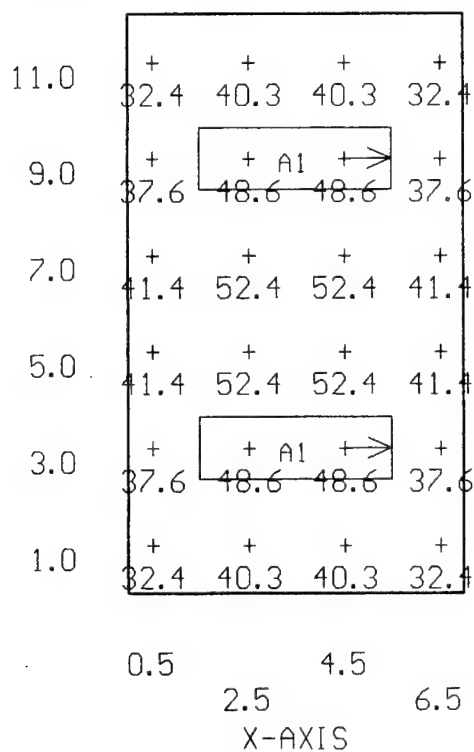


USI's LITE*PRO V2.27E Point-By-Point Numeric Output 13:42 18-Jan-95
 PROJECT: 63-110 AREA: STORAGE B GRID: Ceiling
 Values are FC, SCALE: 1 IN= 4.0FT, HORZ GRID (U), HORZ CALC, Z= 2.5
 Computed in accordance with IES recommendations

+ MIN=32.4 MAX=52.4 AVE=42.1 AVE/MIN= 1.30 MAX/MIN= 1.62

A1 (2) = K9604 COLUMBIA WCW240-A, (2) F40CW, LLF= 0.68

Y-AXIS

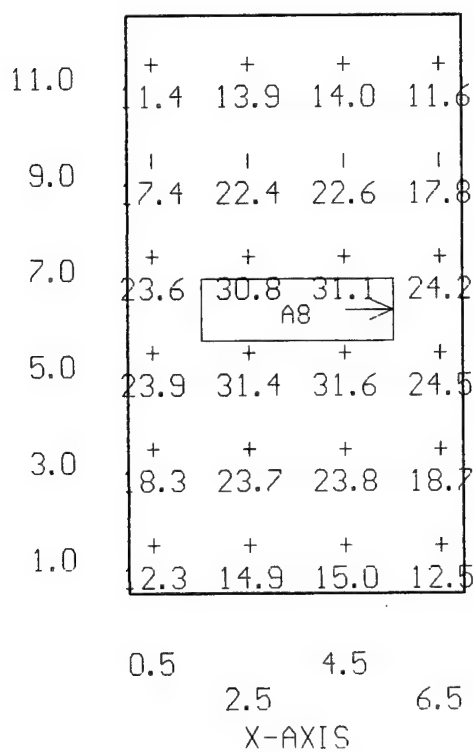


USI's LITE*PRO V2.27E Point-By-Point Numeric Output 15:48 14-Mar-95
 PROJECT: 63-110 AREA: STORAGE B-N GRID: Ceiling
 Values are FC, SCALE: 1 IN= 4.0FT, HORZ GRID (U), HORZ CALC, Z= 2.5
 Computed in accordance with IES recommendations

+ MIN=11.4 MAX=31.6 AVE=20.5 AVE/MIN= 1.79 MAX/MIN= 2.77

A8 <1> = K9604 COLUMBIA WCW240-A, <2> F032/35K, LLF= 0.70

Y-AXIS

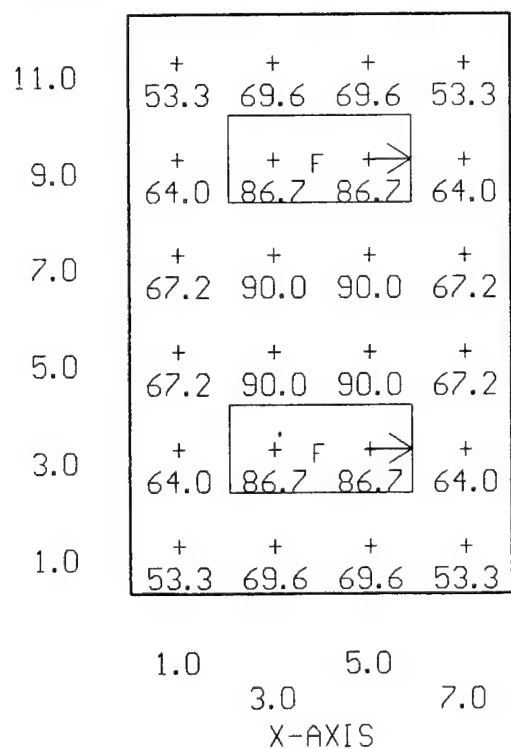


USI's LITE*PRO V2.27E Point-By-Point Numeric Output 13:46 18-Jan-95
 PROJECT: 63-110 AREA: OFFICE GRID: Ceiling
 Values are FC, SCALE: 1 IN= 4.0FT, HORZ GRID (U), HORZ CALC, Z= 2.5
 Computed in accordance with IES recommendations

+ MIN=53.3 MAX=90.0 AVE=71.8 AVE/MIN= 1.35 MAX/MIN= 1.69

F (2) = 9753 COLUMBIA 4PS2*-87-244, (4) F40CW, LLF= 0.68

Y-AXIS

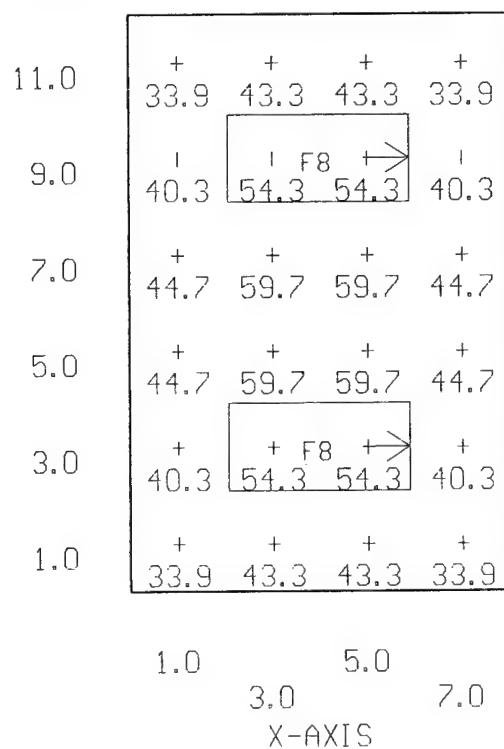


USI's LITE*PRO V2.27E Point-By-Point Numeric Output 15:49 14-Mar-95
 PROJECT: 63-110 AREA: OFFICE-N GRID: Ceiling
 Values are FC, SCALE: 1 IN= 4.0FT, HORZ GRID (U), HORZ CALC, Z= 2.5
 Computed in accordance with IES recommendations

+ MIN=33.9 MAX=59.7 AVE=46.0 AVE/MIN= 1.36 MAX/MIN= 1.76

F8 (2) = 9868 COLUMBIA T84PS2*-84-242-2EOCT, (2) F032/31K, LLF= 0.74

Y-AXIS

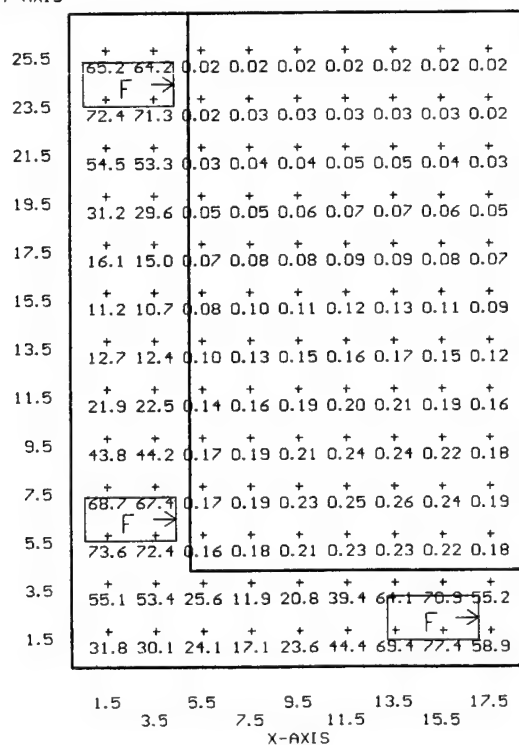


USI's LITE*PRO V2.27E Point-By-Point Numeric Output 13:56 18-Jan-95
 PROJECT: 63-110 AREA: HALLWAYS GRID: Ceiling
 Values are FC, SCALE: 1 IN= 8.0FT, HORZ GRID (U), HORZ CALC, Z= 2.5
 Computed in accordance with IES recommendations

+ MIN=0.02 MAX=77.4 AVE=14.7 AVE/MIN= 743.00 MAX/MIN=3917.54

F <3> = 9753 COLUMBIA 4PS2*-87-244, <4> F40CW, LLF= 0.68

Y-AXIS

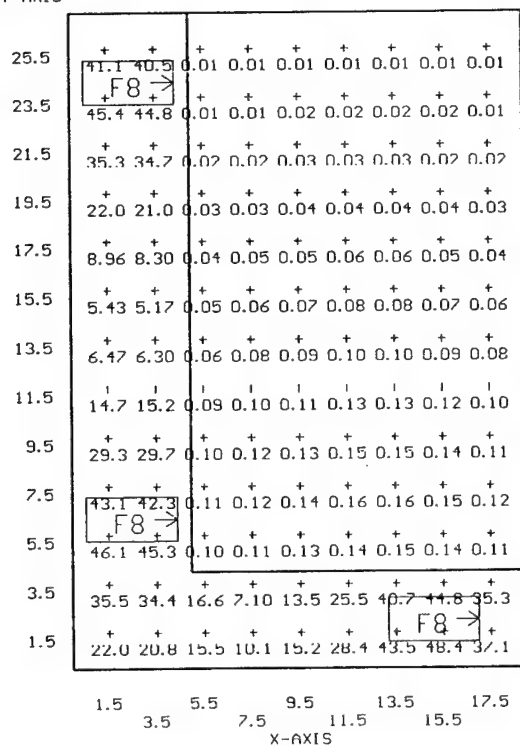


USI's LITE*PRO V2.27E Point-By-Point Numeric Output 15:51 14-Mar-95
 PROJECT: 63-110 AREA: HALLWAYS-N GRID: Ceiling
 Values are FC, SCALE: 1 IN= 8.0FT, HORZ GRID (U), HORZ CALC, Z= 2.5
 Computed in accordance with IES recommendations

+ MIN=0.01 MAX=48.4 AVE=9.33 AVE/MIN= 749.70 MAX/MIN=3890.92

F8 <3> = 9868 COLUMBIA T84PS2*-84-242-2EOCT, (2) F032/31K, LLF= 0.74

Y-AXIS



Bldg 63-120 Summary

Present System

Fixture Type	Watts/ Fixture	Number Fixtures	Total Watts
A	96	3	288
B	192	2	384
F	166	6	996
H1	158	10	1,580
L1	96	1	96
V	210	32	6,720
X5	75	2	150
Totals		56	10,214

Replacement System

Fixture Type	Watts/ Fixture	Number Fixtures	Total Watts
A8	59	5	295
CF	23	2	46
F8	59	5	295
H8	105	10	1,050
L8	60	1	60
V	210	32	6,720
Totals		55	8,466

Reynolds, Smith & Hills, Inc.
 4651 Salisbury Road
 Jacksonville, FL 32256
 Buildings Engineering

Luminaire Fixture Schedule
 Generated by LitePro V2.27E
 Provided and supported by USI Lighting, Inc.
 Filename: 63-120 Type: Indoor

Luminaire Fixture Schedule / **PRESENT**

Project name: PBA Lighting Survey - Bldg 63-120
 Prepared for: Corps of Engineers
 Prepared by: C. Warren

Project #6941331
 Date: 18-Jan-95
 UPD: 0.9W/Sq.Ft

TYPE	DESCRIPTION	LAMP/BALLAST	V/W	QTY	REMARKS
A	15"X4'2L CEILING MT.WRAPAROUND LENS- PRISMATIC W/ GLOW ENDS COLUMBIA WCW240-A	F40CW STD	000 - 96	✓ 3	
B	15"X4'4L CEILING MT.WRAPAROUND LENS- PRISMATIC W/ GLOW ENDS COLUMBIA WCW440-A	F40CW STD	000 - 192	✓ 2	
F	2X4 4L FLUSH STATIC TROFFER LENS- .125" POLARIZED PATT.12 COLUMBIA 4PS2*-87-244	F40CW ESB	000 - 166	✓ 6	
H1	11"X8' 2L INDUSTRIAL OPEN BOTTOM- NO SHIELDING COLUMBIA CSR296	F96T12/CW ESB	000 - 158	✓ 10	
L1	11"X4' 2L INDUSTRIAL OPEN BOTTOM- NO SHIELDING COLUMBIA CSR240	F40CW STD	000 - 96	✓ 1	
V	7"RECESS ROUND DOWNLIGHT,WIDE OPEN-CLR.ALZAK REFL.(20DEG CO) MOLDCAST C-2729	HR175RDXFL39 STD	000 - 210	✓ 32	
X5	6" RECESSED ROUND SHOWER LIGHT LENS- DROP OPAL W/ WIDE TRIM PRESCOLITE PBX-TL30	75A19/IF NA	000 - 75	✓ 2	

NOTES:

63-120 Schedule

Reynolds, Smith & Hills, Inc.
4651 Salisbury Road
Jacksonville, FL 32256
Buildings Engineering

Luminaire Fixture Schedule
Generated by LitePro V2.27E
Provided and supported by USI Lighting, Inc.
Filename: 63-120 Type: Indoor

Luminaire Fixture Schedule / **PROPOSED**

Project name: PBA Lighting Survey - Bldg 63-120
Prepared for: Corps of Engineers
Prepared by: C. Warren

Project #6941331
Date: 14-Mar-95
UPD: 0.8W/Sq.Ft

TYPE	DESCRIPTION	LAMP/BALLAST	V/W	QTY	REMARKS
A8	15"X4'2L CEILING MT.WRAPAROUND LENS- PRISMATIC W/ GLOW ENDS COLUMBIA WCW240-A	FO32/35K EOCT	000 - 59	5	
CF	8"1L(VERT) RECESS RND.DOWNLITE OPEN - CLR.REFL. W/ BLK.BAFFLE PRESCOLITE CF122518-B462	F18DTT/27K STD	000 - 23	2	
F8	2X4 2L FLUSH STATIC TROFFER LENS-PRISMATIC ACRYLIC PATT-19 COLUMBIA T84PS2*-84-242-2EOCT	FO32/31K EOCT	000 - 59	5	
H8	11"X8' 2L INDUSTRIAL OPEN BOTTOM- NO SHIELDING COLUMBIA CSR296	FO96/735 EOCT	000 - 105	10	
L8	1X4 2L SOLID REFL.INDUSTRIAL OPEN- NO SHIELDING COLUMBIA CSR240-PAF-EOCT	FO32/35K EOCT	000 - 60	1	
V	7"RECESS ROUND DOWNLIGHT,WIDE OPEN-CLR.ALZAK REFL.(20DEG CO) MOLDCAST C-2729	HR175RDXFL39 STD	000 - 210	32	

NOTES:

63-120 Areas

Reynolds, Smith & Hills, Inc.
4651 Salisbury Road
Jacksonville, FL 32256
Buildings Engineering

Project Area Summary
Generated by LitePro V2.27E
Provided and supported by USI Lighting, Inc.
Filename: 63-120 Type: Indoor

Project Area Summary

Project name: PBA Lighting Survey - Bldg 63-120
Prepared for: Corps of Engineers
Prepared by: C. Warren

Project #6941331
Date: 14-Mar-95
UPD: 0.9W/Sq.Ft

AREA NAME	DIMENSIONS	LUMINAIRES	W/SQ.FT	QTY
LOADING AREA 1	164x60x18Ft	(10) Type H1 (32) Type V	0.8	1
LOAD AREA 1-N	164x60x18Ft	(10) Type H8 (32) Type V	0.8	1
CHANGE AREA	17x18x8Ft	(2) Type A (2) Type B (2) Type X5	2.4	1
CHANGE AREA-N	17x18x8Ft	(4) Type A8 (2) Type CF	0.9	1
R/A STORAGE	10x10x8Ft	(2) Type F	3.3	1
R/A STORAGE-N	10x10x8Ft	(1) Type F8	0.6	1
OFFICE	10x14x8Ft	(2) Type F	2.4	1
OFFICE-N	10x14x8Ft	(2) Type F8	0.8	1
RESTROOM 1	10x8x8Ft	(1) Type A	1.2	1
RESTROOM 1-N	10x8x8Ft	(1) Type A8	0.7	1
TOOL ROOM OFC	9x20x8Ft	(1) Type L1	0.5	1
TOOL ROOM OFC-N	9x20x8Ft	(1) Type L8	0.3	1
BREAK ROOM	16x14x8Ft	(2) Type F	1.5	1
BREAK ROOM-N	16x14x8Ft	(2) Type F8	0.5	1

63-120 Calculations

Reynolds, Smith & Hills, Inc.
 4651 Salisbury Road
 Jacksonville, FL 32256
 Buildings Engineering

Project Calculation Summary
 Generated by LitePro V2.27E
 Provided and supported by USI Lighting, Inc.
 Filename: 63-120 Type: Indoor

Project Calculation Summary

Project name: PBA Lighting Survey - Bldg 63-120
 Prepared for: Corps of Engineers
 Prepared by: C. Warren

Project #6941331
 Date: 14-Mar-95
 UPD: 0.9W/Sq.Ft

AREA NAME	DIMENSIONS	GRID NAME	AVE	MAX	MIN
LOADING AREA 1	164x60x18Ft	Ceiling	<+> 13.7	62.1	0.0
LOAD AREA 1-N	164x60x18Ft	Ceiling	<+> 14.1	59.5	0.0
CHANGE AREA	17x18x8Ft	Ceiling	<+> 36.9	77.3	0.0
CHANGE AREA-N	17x18x8Ft	Ceiling	<+> 21.7	35.9	0.0
R/A STORAGE	10x10x8Ft	Ceiling	<+> 68.8	94.6	46.7
R/A STORAGE-N	10x10x8Ft	Ceiling	<+> 23.9	42.3	12.5
OFFICE	10x14x8Ft	Ceiling	<+> 54.4	80.4	36.2
OFFICE-N	10x14x8Ft	Ceiling	<+> 37.4	60.0	19.5
RESTROOM 1	10x8x8Ft	Ceiling	<+> 25.0	36.5	16.9
RESTROOM 1-N	10x8x8Ft	Ceiling	<+> 22.3	32.5	15.0
TOOL ROOM OFC	9x20x8Ft	Ceiling	<+> 14.9	35.9	4.8
TOOL ROOM OFC-N	9x20x8Ft	Ceiling	<+> 15.3	36.4	5.1
BREAK ROOM	16x14x8Ft	Ceiling	<+> 39.8	78.9	11.6
BREAK ROOM-N	16x14x8Ft	Ceiling	<+> 24.3	48.4	6.6

NOTES:

USI's LITE*PRO V2.27E Point-By-Point Numeric Output 16:12 18-Jan-95
 PROJECT: 63-120 AREA: LOADING AREA 1 GRID: Ceiling
 Values are FC, SCALE: 1 IN= 24.0FT, HORZ GRID <U>, HORZ CALC, Z= 2.5
 Computed in accordance with IES recommendations

+ MIN=0.00 MAX=62.1 AVE=13.7 AVE/MIN=N/A MAX/MIN=N/A

H1 <10> = K7993 COLUMBIA CSR296, <2> F96T12/CW, LLF= 0.67
 U <32> = M13104 MOLDCAST C-2729, <1> HR175RDXFL39, LLF= 0.53

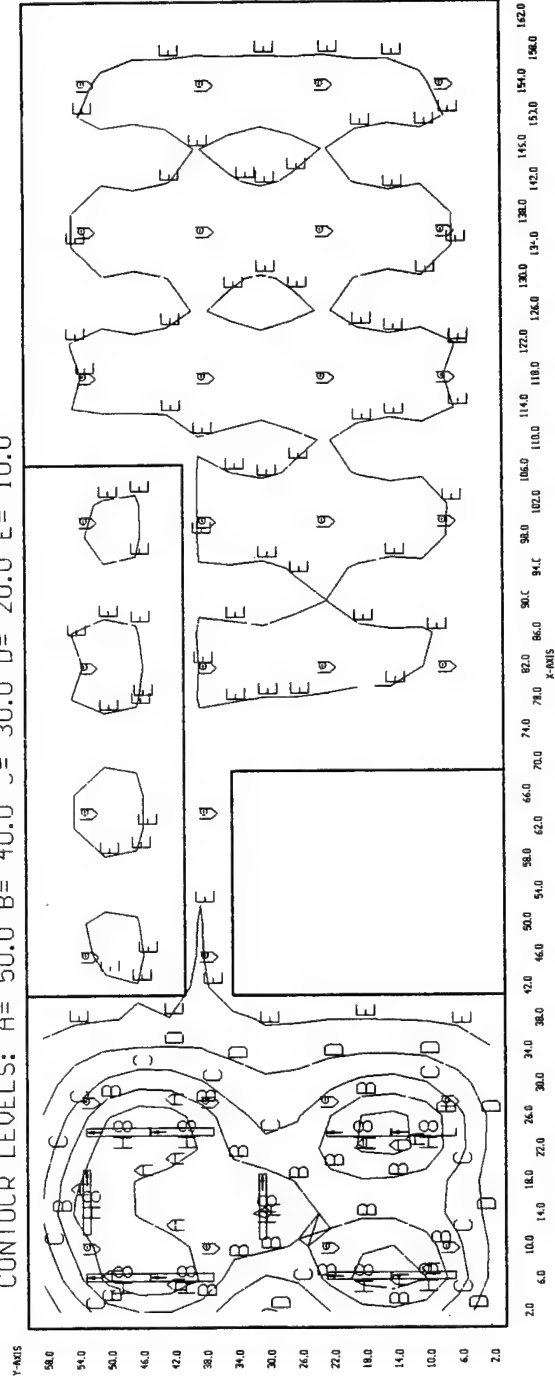
Y-AXIS	58.0	54.0	50.0	46.0	42.0	38.0	34.0	30.0	26.0	22.0	18.0	14.0	10.0	6.0	2.0																										
X-AXIS	15.3	21.2	27.6	32.0	30.0	24.8	20.4	16.3	12.1	6.74	2.22	7.10	6.55	5.57	6.37	7.51	7.50	6.37	5.78	7.04	7.63	7.84	5.80	6.38	7.24	7.07	5.73	3.78	6.95	7.40	7.01	5.75	6.33	7.45	7.41	6.30	5.68	6.85	7.27	6.26	3.95
	25.7	34.2	42.5	47.5	45.0	38.4	32.0	24.2	16.8	8.25	3.07	8.44	8.05	7.05	8.36	8.88	8.87	8.36	7.88	8.53	8.85	8.33	7.83	8.38	8.93	8.72	7.3	5.13	8.66	8.95	8.94	7.88	8.36	8.88	8.85	8.22	7.79	8.74	8.94	7.94	5.25
	36.9	45.9	57.5	66.6	60.0	50.2	40.9	29.9	20.1	9.92	3.59	9.38	9.31	8.28	8.81	9.78	9.77	8.72	8.44	9.59	9.44	8.23	8.79	9.40	9.12	7.95	5.37	5.43	9.43	9.49	8.26	8.82	9.79	9.78	8.77	8.16	9.27	9.16	8.38	5.46	
	42.0	50.9	63.5	71.0	61.5	48.6	36.6	27.8	21.4	10.3	4.67	10.4	9.37	7.43	8.32	10.4	10.3	8.26	7.31	9.45	10.6	9.45	7.32	8.27	9.33	9.64	7.11	4.87	9.92	10.7	9.57	7.43	8.37	10.4	10.4	8.32	7.22	9.33	10.2	8.44	4.86
	47.0	57.0	70.5	78.0	65.5	50.8	37.0	27.1	21.7	10.5	4.72	11.6	10.4	7.75	8.84	12.4	12.4	9.27	7.67	10.1	11.6	10.1	7.67	8.30	10.2	10.6	7.3	5.40	9.93	10.6	9.67	8.11	8.83	10.3	10.3	8.78	7.95	9.41	10.0	8.48	5.37
	52.0	62.0	76.0	83.0	69.0	52.0	38.0	27.0	21.0	10.0	4.78	12.0	10.0	7.80	8.80	12.0	12.0	9.30	7.80	10.0	11.0	10.0	7.80	8.30	10.0	10.0	7.0	5.40	9.93	10.6	9.67	8.11	8.83	10.3	10.3	8.78	7.95	9.41	10.0	8.48	5.37
	57.0	67.0	81.0	88.0	74.0	56.0	40.0	29.0	23.0	10.0	4.83	12.0	10.0	7.85	8.85	12.0	12.0	9.35	7.85	10.0	11.0	10.0	7.85	8.35	10.0	10.0	7.0	5.40	9.93	10.6	9.67	8.11	8.83	10.3	10.3	8.78	7.95	9.41	10.0	8.48	5.37
	62.0	72.0	86.0	93.0	79.0	60.0	44.0	33.0	27.0	10.0	4.88	12.0	10.0	7.90	8.90	12.0	12.0	9.40	7.90	10.0	11.0	10.0	7.90	8.40	10.0	10.0	7.0	5.40	9.93	10.6	9.67	8.11	8.83	10.3	10.3	8.78	7.95	9.41	10.0	8.48	5.37
	67.0	77.0	91.0	98.0	84.0	64.0	48.0	37.0	31.0	10.0	4.93	12.0	10.0	7.95	8.95	12.0	12.0	9.45	7.95	10.0	11.0	10.0	7.95	8.45	10.0	10.0	7.0	5.40	9.93	10.6	9.67	8.11	8.83	10.3	10.3	8.78	7.95	9.41	10.0	8.48	5.37
	72.0	82.0	96.0	103.0	89.0	68.0	52.0	41.0	35.0	10.0	4.98	12.0	10.0	8.00	9.00	12.0	12.0	9.50	8.00	10.0	11.0	10.0	8.00	8.50	10.0	10.0	7.0	5.40	9.93	10.6	9.67	8.11	8.83	10.3	10.3	8.78	7.95	9.41	10.0	8.48	5.37
	77.0	87.0	101.0	108.0	94.0	72.0	56.0	45.0	39.0	10.0	5.03	12.0	10.0	8.05	9.05	12.0	12.0	9.55	8.05	10.0	11.0	10.0	8.05	8.55	10.0	10.0	7.0	5.40	9.93	10.6	9.67	8.11	8.83	10.3	10.3	8.78	7.95	9.41	10.0	8.48	5.37
	82.0	92.0	106.0	113.0	99.0	76.0	60.0	49.0	43.0	10.0	5.08	12.0	10.0	8.10	9.10	12.0	12.0	9.60	8.10	10.0	11.0	10.0	8.10	8.60	10.0	10.0	7.0	5.40	9.93	10.6	9.67	8.11	8.83	10.3	10.3	8.78	7.95	9.41	10.0	8.48	5.37
	87.0	97.0	111.0	118.0	104.0	80.0	64.0	53.0	47.0	10.0	5.13	12.0	10.0	8.15	9.15	12.0	12.0	9.65	8.15	10.0	11.0	10.0	8.15	8.65	10.0	10.0	7.0	5.40	9.93	10.6	9.67	8.11	8.83	10.3	10.3	8.78	7.95	9.41	10.0	8.48	5.37
	92.0	102.0	116.0	123.0	109.0	84.0	68.0	57.0	51.0	10.0	5.18	12.0	10.0	8.20	9.20	12.0	12.0	9.70	8.20	10.0	11.0	10.0	8.20	8.70	10.0	10.0	7.0	5.40	9.93	10.6	9.67	8.11	8.83	10.3	10.3	8.78	7.95	9.41	10.0	8.48	5.37
	97.0	107.0	121.0	128.0	114.0	88.0	72.0	61.0	55.0	10.0	5.23	12.0	10.0	8.25	9.25	12.0	12.0	9.75	8.25	10.0	11.0	10.0	8.25	8.75	10.0	10.0	7.0	5.40	9.93	10.6	9.67	8.11	8.83	10.3	10.3	8.78	7.95	9.41	10.0	8.48	5.37
	102.0	112.0	126.0	133.0	119.0	92.0	76.0	65.0	59.0	10.0	5.28	12.0	10.0	8.30	9.30	12.0	12.0	9.80	8.30	10.0	11.0	10.0	8.30	8.80	10.0	10.0	7.0	5.40	9.93	10.6	9.67	8.11	8.83	10.3	10.3	8.78	7.95	9.41	10.0	8.48	5.37
	107.0	117.0	131.0	138.0	124.0	96.0	80.0	69.0	63.0	10.0	5.33	12.0	10.0	8.35	9.35	12.0	12.0	9.85	8.35	10.0	11.0	10.0	8.35	8.85	10.0	10.0	7.0	5.40	9.93	10.6	9.67	8.11	8.83	10.3	10.3	8.78	7.95	9.41	10.0	8.48	5.37
	112.0	122.0	136.0	143.0	129.0	100.0	84.0	73.0	67.0	10.0	5.38	12.0	10.0	8.40	9.40	12.0	12.0	9.90	8.40	10.0	11.0	10.0	8.40	8.90	10.0	10.0	7.0	5.40	9.93	10.6	9.67	8.11	8.83	10.3	10.3	8.78	7.95	9.41	10.0	8.48	5.37
	117.0	127.0	141.0	148.0	134.0	104.0	88.0	77.0	71.0	10.0	5.43	12.0	10.0	8.45	9.45	12.0	12.0	9.95	8.45	10.0	11.0	10.0	8.45	8.95	10.0	10.0	7.0	5.40	9.93	10.6	9.67	8.11	8.83	10.3	10.3	8.78	7.95	9.41	10.0	8.48	5.37
	122.0	132.0	146.0	153.0	139.0	108.0	92.0	81.0	75.0	10.0	5.48	12.0	10.0	8.50	9.50	12.0	12.0	10.00	8.50	10.0	11.0	10.0	8.50	9.00	10.0	10.0	7.0	5.40	9.93	10.6	9.67	8.11	8.83	10.3	10.3	8.78	7.95	9.41	10.0	8.48	5.37
	127.0	137.0	151.0	158.0	144.0	112.0	96.0	85.0	79.0	10.0	5.53	12.0	10.0	8.55	9.55	12.0	12.0	10.05	8.55	10.0	11.0	10.0	8.55	9.05	10.0	10.0	7.0	5.40	9.93	10.6	9.67	8.11	8.83	10.3	10.3	8.78	7.95	9.41	10.0	8.48	5.37
	132.0	142.0	156.0	163.0	149.0	116.0	100.0	89.0	83.0	10.0	5.58	12.0	10.0	8.60	9.60	12.0	12.0	10.10	8.60	10.0	11.0	10.0	8.60	9.10	10.0	10.0	7.0	5.40	9.93	10.6	9.67	8.11	8.83	10.3	10.3	8.78	7.95	9.41	10.0	8.48	5.37
	137.0	147.0	161.0	168.0	154.0	120.0	104.0	93.0	87.0	10.0	5.63	12.0	10.0	8.65	9.65	12.0	12.0	10.15	8.65	10.0	11.0	10.0	8.65	9.15	10.0	10.0	7.0	5.40	9.93	10.6	9.67	8.11	8.83	10.3	10.3	8.78	7.95	9.41	10.0	8.48	5.37
	142.0	152.0	166.0	173.0	159.0	124.0	108.0	97.0	91.0	10.0	5.68	12.0	10.0	8.70	9.70	12.0	12.0	10.20	8.70	10.0	11.0	10.0	8.70	9.20	10.0	10.0	7.0	5.40	9.93	10.6	9.67	8.11	8.83	10.3	10.3	8.78	7.95	9.41	10.0	8.48	5.37
	147.0	157.0	171.0	178.0	164.0	128.0	112.0	102.0	96.0	10.0	5.73	12.0	10.0	8.75	9.75	12.0	12.0	10.25	8.75	10.0	11.0	10.0	8.75	9.25	10.0	10.0	7.0	5.40	9.93	10.6	9.67	8.11	8.83	10.3	10.3	8.78	7.95	9.41	10.0	8.48	5.37
	152.0	162.0	176.0	183.0	169.0	132.0	116.0	106.0	100.0	10.0	5.78	12.0	10.0	8.80	9.80	12.0	12.0	10.30	8.80	10.0	11.0	10.0	8.80	9.30	10.0	10.0	7.0	5.40	9.93	10.6	9.67	8.11	8.83	10.3	10.3	8.78	7.95	9.41	10.0	8.48	5.37
	157.0	167.0	181.0	188.0	174.0	136.0	120.0	110.0	104.0	10.0	5.83	12.0	10.0	8.85	9.85	12.0	12.0	10.35	8.85	10.0	11.0	10.0	8.85	9.35	10.0	10.0	7.0	5.40	9.93	10.6	9.67	8.11	8.83	10.3	10.3	8.78	7.95	9.41	10.0	8.48	5.37
	162.0	172.0	186.0	193.0	179.0	140.0	124.0	114.0	108.0	10.0	5.88	12.0	10.0	8.90	9.90	12.0	12.0	10.40	8.90	10.0	11.0	10.0	8.90	9.40	10.0	10.0	7.0	5.40	9.93	10.6	9.67	8.11	8.83	10.3	10.3	8.78	7.95	9.41	10.0	8.48	5.37
	167.0	177.0	191.0	198.0	184.0	144.0	128.0	118.0	112.0	10.0	5.93	12.0	10.0	8.95	9.95	12.0	12.0	10.45	8.95	10.0	11.0	10.0	8.95	9.45	10.0	10.0	7.0	5.40	9.93	10.6	9.67	8.11	8.83	10.3	10.3	8.78	7.95	9.41	10.0	8.48	5.37
	172.0	182.0	196.0	203.0	189.0	148.0	132.0	122.0	116.0	10.0	5.98	12.0	10.0	9.00	10.00	12.0	12.0	10.50	9.00	10.0	11.0	10.0	9.00	9.50	10.0	10.0	7.0	5.40	9.93	10.6	9.67	8.11	8.83	10.3	10.3	8.78	7.95	9.41	10.0	8.48	5.37
	177.0	187.0	201.0	208.0	194.0	152.0	136.0	126.0	120.0	10.0	6.03	12.0	10.0	9.05	10.05	12.0	12.0	10.55	9.05	10.0	11.0	10																			

USI's LITE*PRO V2.27E Point-By-Point Numeric Output 16:27 14-Mar-95
 PROJECT: 63-120 AREA: LOAD AREA 1-N GRID: Ceiling
 Values are FC, SCALE: 1 IN= 24.0FT, HORZ GRID (U), HORZ CALC, Z= 2.5
 Computed in accordance with IES recommendations

+ MIN=0.00 MAX=59.5 AVE=14.1 AVE/MIN=N/A MAX/MIN=N/A

H8 <10> = K7993 COLUMBIA CSR296, <2> F096.735, LLF= 0.69
 U <32> = M13104 MOLDCAST C-2729, <1> HR175RDX=L39, LLF= 0.53

CONTOUR LEVELS: A= 50.0 B= 40.0 C= 30.0 D= 20.0 E= 10.0



USI's LITE*PRO V2.27E Point-By-Point Numeric Output 16:20 18-Jan-95
 PROJECT: 63-120 AREA: RESTROOM 1 GRID: Ceiling
 Values are FC, SCALE: 1 IN= 4.0FT, HORZ GRID (U), HORZ CALC, Z= 2.5
 Computed in accordance with IES recommendations

+ MIN=16.9 MAX=36.5 AVE=25.0 AVE/MIN= 1.48 MAX/MIN= 2.16

A <1> = K9604 COLUMBIA WCW240-A, <2> F40CW, LLF= 0.68

Y-AXIS

7.0	+	+	+	+	+	+	+	+	+
	16.9	23.6	27.2	23.6	16.9				
5.0	+	+	+	+	+	+	+	+	+
	20.6	30.6	35.9	30.6	20.6				
3.0	+	+	+	+	+	+	+	+	+
	20.9	31.0	36.5	31.0	20.9				
1.0	+	+	+	+	+	+	+	+	+
	17.5	24.7	28.5	24.7	17.5				

1.0 3.0 5.0 7.0 9.0

X-AXIS

USI's LITE*PRO V2.27E Point-By-Point Numeric Output: 16:34 14-Mar-95
 PROJECT: 63-120 AREA: RESTROOM 1-N GRID: Ceiling
 Values are FC, SCALE: 1 IN= 4.0FT, HORZ GRID (U), HORZ CALC, Z= 2.5
 Computed in accordance with IES recommendations

+ MIN=15.0 MAX=32.5 AVE=22.3 AVE/MIN= 1.48 MAX/MIN= 2.16

A8 <1> = K9604 COLUMBIA WCW240-A, <2> F032/35K, LLF= 0.66

Y-AXIS

7.0	+	15.0	21.1	24.3	21.1	+	+
5.0	+	18.4	27.3	32.1	27.3	+	+
3.0	+	18.6	27.7	32.5	27.7	+	+
1.0	+	15.6	22.0	25.5	22.0	+	+

1.0 3.0 5.0 7.0 9.0

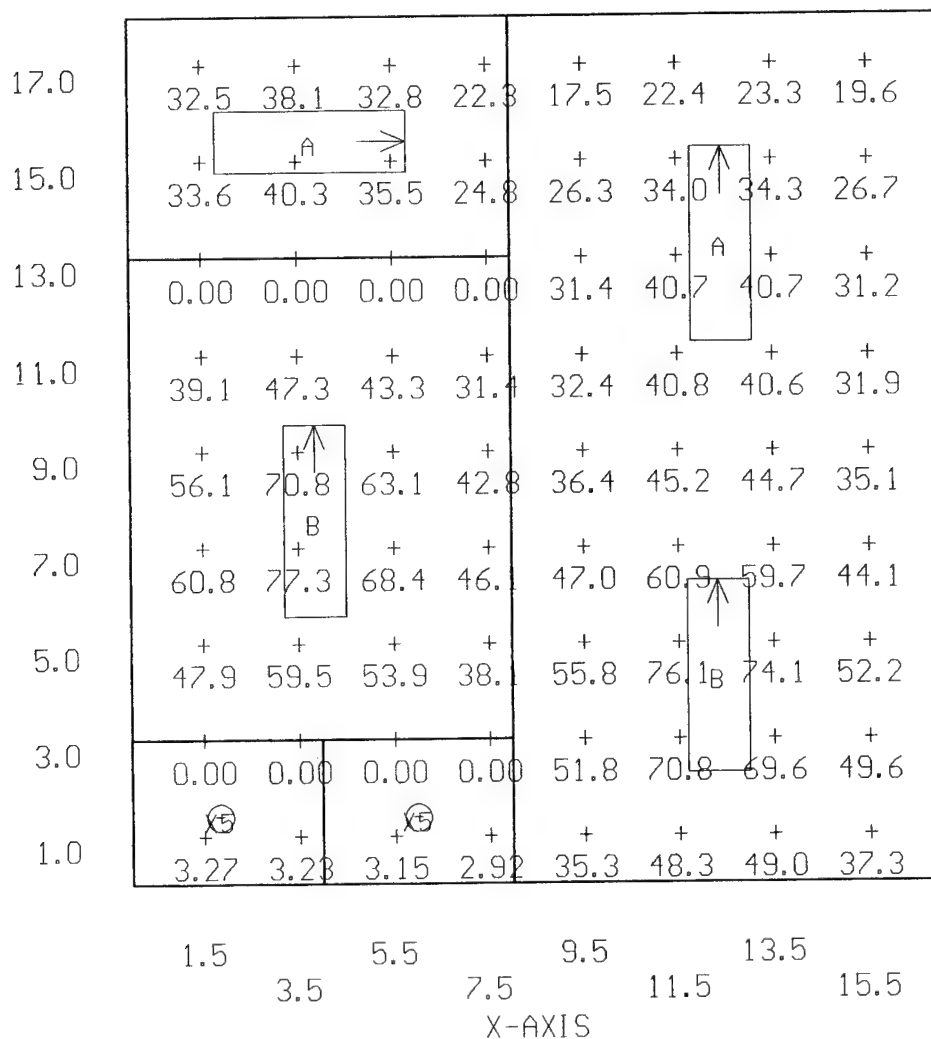
X-AXIS

USI's LITE*PRO V2.27E Point-By-Point Numeric Output 16:44 18-Jan-95
 PROJECT: 63-120 AREA: CHANGE AREA GRID: Ceiling
 Values are FC, SCALE: 1 IN= 4.0FT, HORZ GRID (U), HORZ CALC, Z= 2.5
 Computed in accordance with IES recommendations

+ MIN=0.00 MAX=77.3 AVE=36.9 AVE/MIN=N/A MAX/MIN=N/A

A <2> = K9604 COLUMBIA WCW240-A, (2) F40CW, LLF= 0.68
 B <2> = K9708 COLUMBIA WCW440-A, (4) F40CW, LLF= 0.68
 X5 <2> = B1397B PRESCOLITE PBX-TL30, (1) 75A19/IF, LLF= 0.76

Y-AXIS

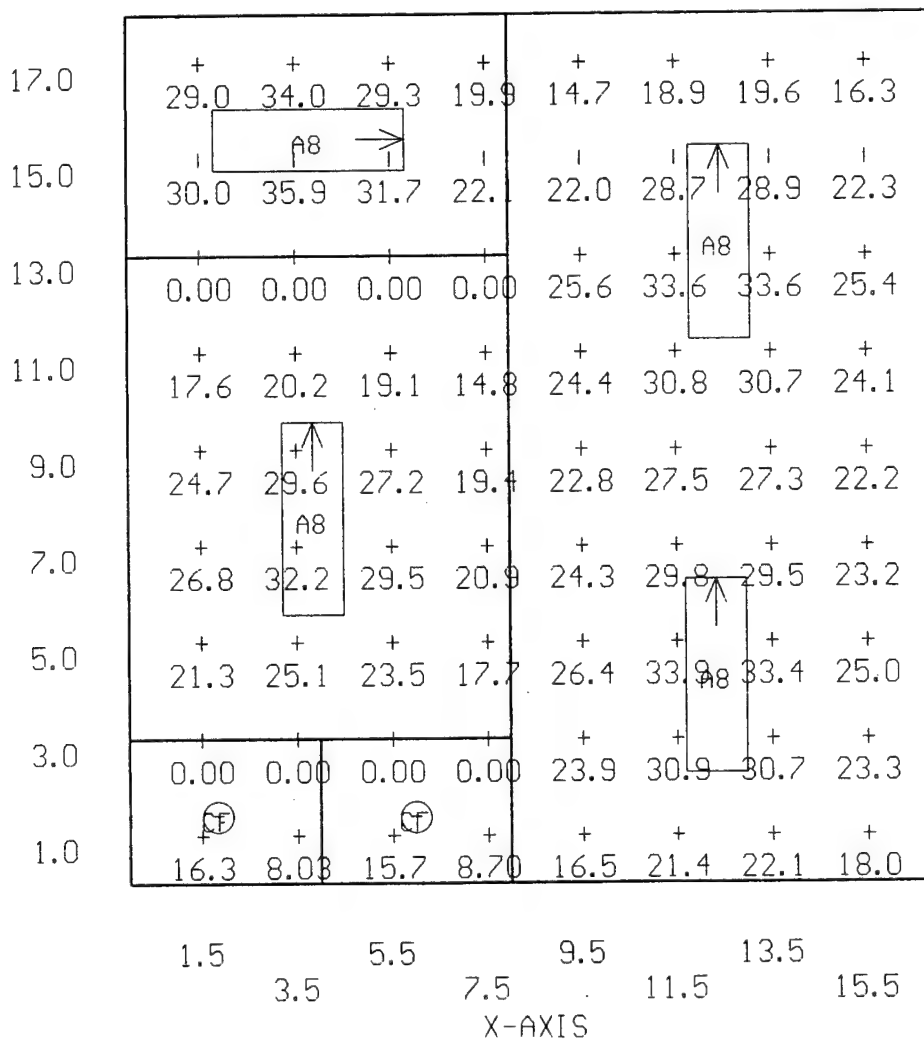


USI's LITE*PRO V2.27E Point-By-Point Numeric Output 16:39 14-Mar-95
 PROJECT: 63-120 AREA: CHANGE AREA-N GRID: Ceiling
 Values are FC, SCALE: 1 IN= 4.0FT, HORZ GRID (U), HORZ CALC, Z= 2.5
 Computed in accordance with IES recommendations

+ MIN=0.00 MAX=35.9 AVE=21.7 AVE/MIN=N/A MAX/MIN=N/A

A8 <4> = K9604 COLUMBIA WCW240-A, (2) F032/35K, LLF= 0.66
 CF <2> = B2125A PRESCOLITE CF122518-B462, (1) F18DTT/27K, LLF= 0.50

Y-AXIS

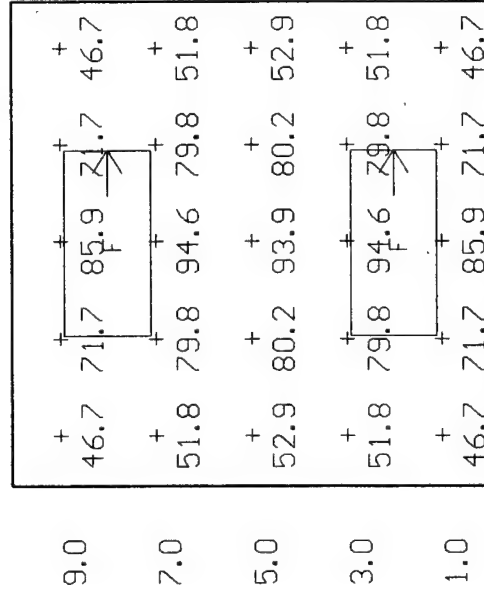


USI's LITE*PRO V2.27E Point-By-Point Numeric Output 16:53 18-Jan-95
 PROJECT: 63-120 AREA: R/A STORAGE GRID: Ceiling
 Values are FC, SCALE: 1 IN= 4.0FT, HORZ GRID (U), HORZ CALC, Z= 2.5
 Computed in accordance with IES recommendations

+ MIN=46.7 MAX=94.6 AVE=68.8 AVE/MIN= 1.47 MAX/MIN= 2.03

F <2> = 9753 COLUMBIA 4PS2*-87-244, <4> F40CW, LLF= 0.68

Y-AXIS



1.0 3.0 5.0 7.0 9.0
 X-AXIS

USI's LITE*PRO V2.27E Point-3y-Point Numeric Output 16:43 14-Mar-95
 PROJECT: 63-120 AREA: R/A STORAGE-N GRID: Ceiling
 Values are °C, SCALE: 1 IN= 4.0FT, HORZ GRID (U), HORZ CALC, Z= 2.5
 Computed in accordance with IES recommendations

+ MIN=12.5 MAX=42.3 AVE=23.9 AVE/MIN= 1.91 MAX/MIN= 3.38

F8 <1> = 9858 COLUMBIA T84PS2*-84-242-2ECCT, <2> FC32/31K, LLF= 0.66

Y-AXIS

9.0	+	12.8	+	19.5	+	22.7	+	19.3	+	12.5
7.0	+	19.2	+	29.4	+	34.6	+	29.1	+	18.8
5.0	+	22.2	+	35.2	+	42.3	+	34.8	+	21.7
3.0	+	19.5	+	29.9	+	35.2	+	29.6	+	19.1
1.0	+	13.2	+	20.1	+	23.4	+	19.9	+	12.9

1.0 3.0 5.0 7.0 9.0

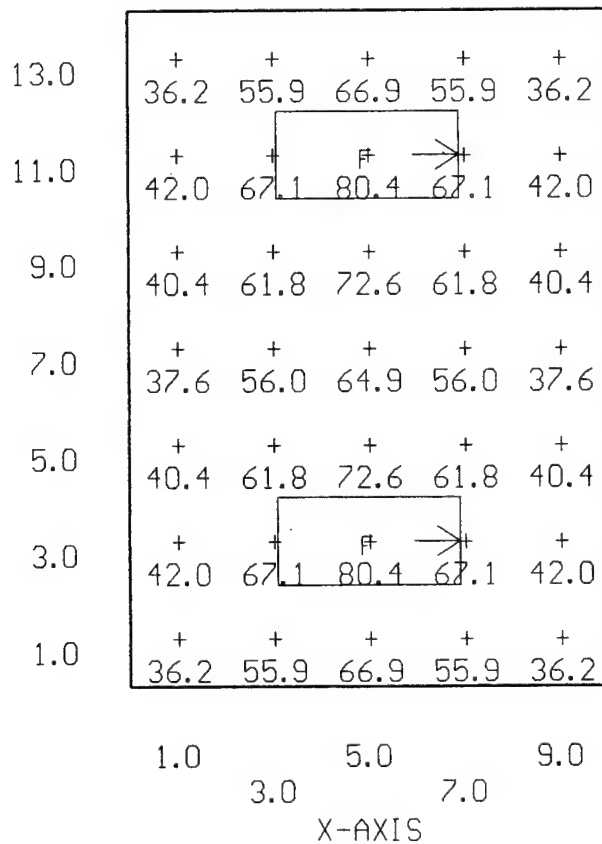
X-AXIS

USI's LITE*PRO V2.27E Point-By-Point Numeric Output 16:56 18-Jan-95
 PROJECT: 63-120 AREA: OFFICE GRID: Ceiling
 Values are FC, SCALE: 1 IN= 4.0FT, HORZ GRID (U), HORZ CALC, Z= 2.5
 Computed in accordance with IES recommendations

+ MIN=36.2 MAX=80.4 AVE=54.4 AVE/MIN= 1.51 MAX/MIN= 2.22

F <2> = 9753 COLUMBIA 4PS2*-87-244, (4) F40CW, LLF= 0.68

Y-AXIS



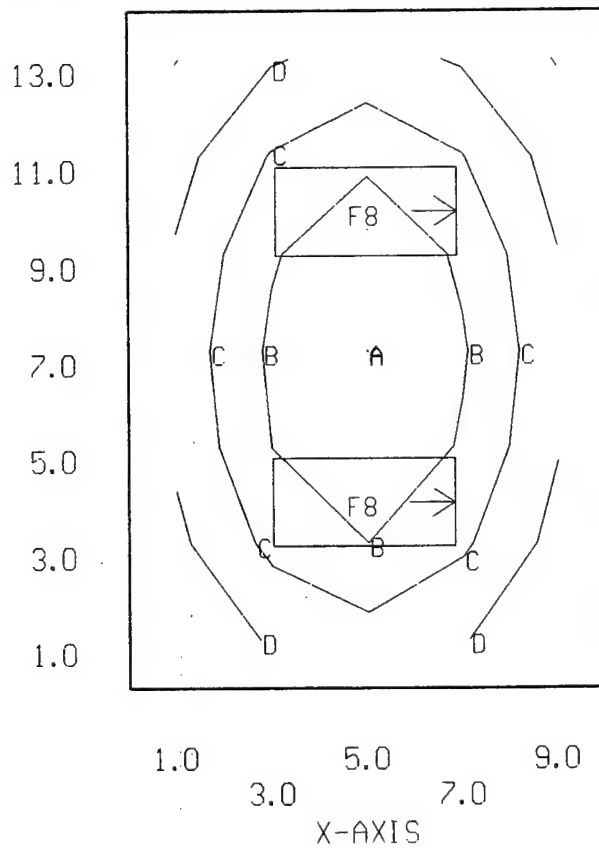
USI's LITE*PRO V2.27E Point-By-Point Numeric Output 16:48 14-Mar-95
 PROJECT: 63-120 AREA: OFFICE-N GRID: Ceiling
 Values are FC, SCALE: 1 IN= 4.0FT, HORZ GRID (U), HORZ CALC, Z= 2.5
 Computed in accordance with IES recommendations

+ MIN=19.5 MAX=60.0 AVE=37.4 AVE/MIN= 1.92 MAX/MIN= 3.08

F8 <2> = 9868 COLUMBIA T84PS2*-84-242-2EOCT, <2> F032/31K, LLF= 0.66

Y-AXIS

CONTOUR LEVELS: A= 60.0 B= 50.0 C= 40.0 D= 30.0 E= 20.0

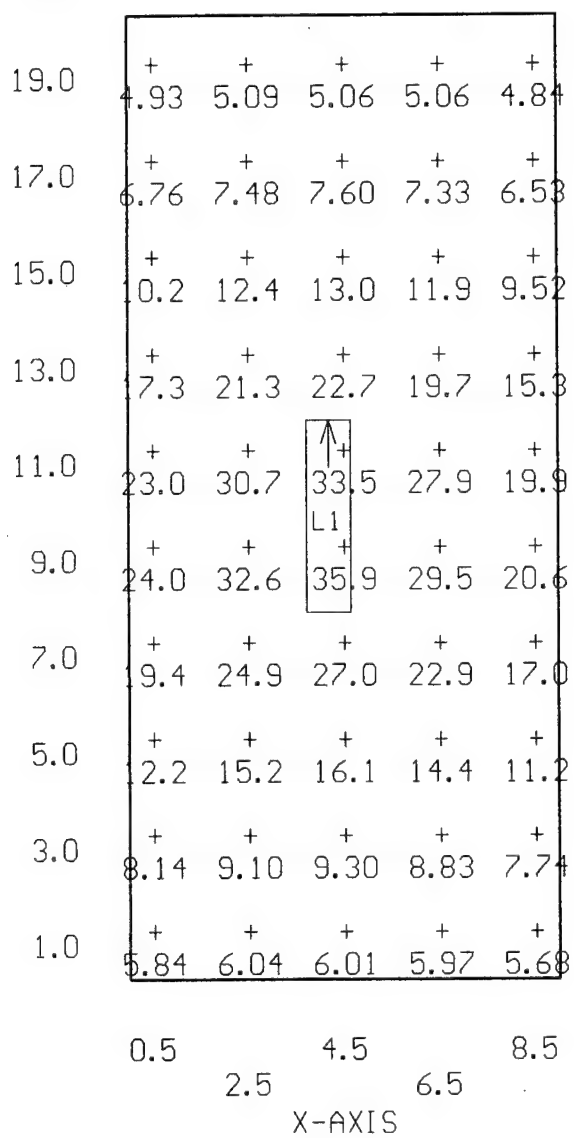


USI's LITE*PRO V2.27E Point-By-Point Numeric Output 17:04 18-Jan-95
 PROJECT: 63-120 AREA: TOOL ROOM OFC GRID: Ceiling
 Values are FC, SCALE: 1 IN= 4.0FT, HORZ GRID (U), HORZ CALC, Z= 2.5
 Computed in accordance with IES recommendations

+ MIN=4.84 MAX=35.9 AVE=14.9 AVE/MIN= 3.08 MAX/MIN= 7.42

L1 <1> = K7990 COLUMBIA CSR240, <2> F40CW, LLF= 0.68

Y-AXIS

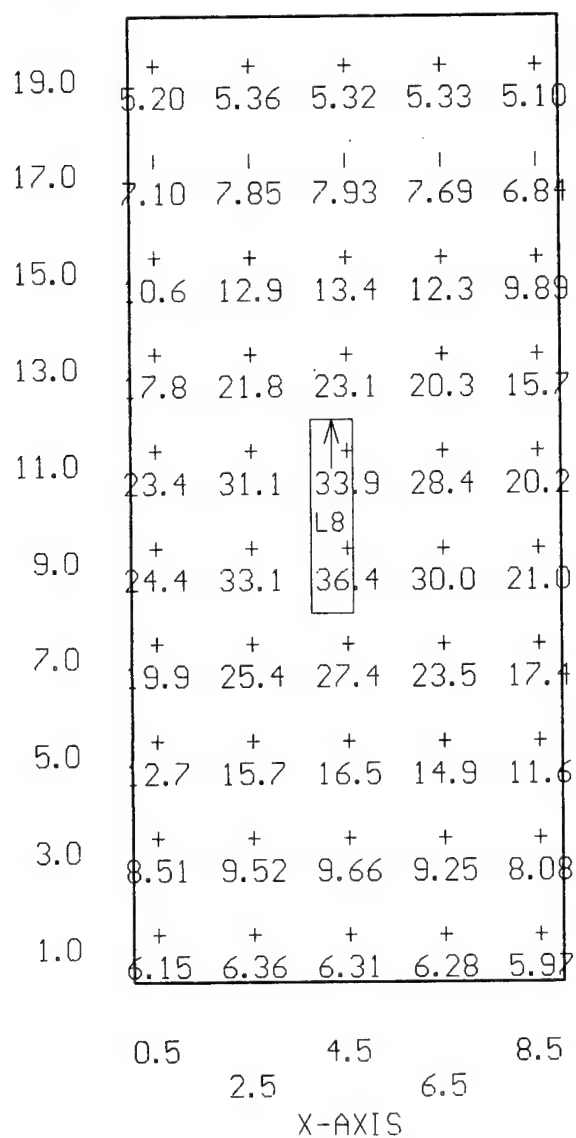


USI's LITE*PRO V2.27E Point-By-Point Numeric Output 16:52 14-Mar-95
 PROJECT: 63-120 AREA: TOOL ROOM OFC-N GRID: Ceiling
 Values are FC, SCALE: 1 IN= 4.0FT, HORZ GRID (U), HORZ CALC, Z= 2.5
 Computed in accordance with IES recommendations

+ MIN=5.10 MAX=36.4 AVE=15.3 AVE/MIN= 3.00 MAX/MIN= 7.13

L8 <1> = 10331 COLUMBIA CSR240-PAF-EOCT, <2> F032/35K, LLF= 0.73

Y-AXIS

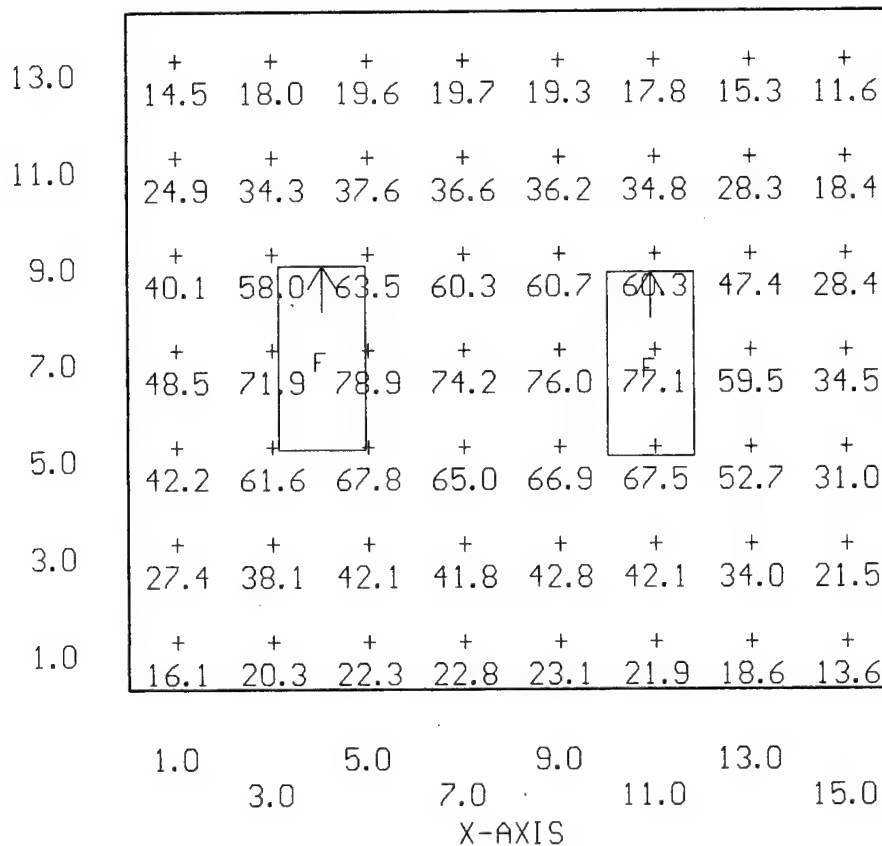


USI's LITE*PRO V2.27E Point-By-Point Numeric Output 17:41 18-Jan-95
 PROJECT: 63-120 AREA: BREAK ROOM GRID: Ceiling
 Values are FC, SCALE: 1 IN= 4.0FT, HORZ GRID (U), HORZ CALC, Z= 2.5
 Computed in accordance with IES recommendations

+ MIN=11.6 MAX=78.9 AVE=39.8 AVE/MIN= 3.42 MAX/MIN= 6.78

F <2> = 9753 COLUMBIA 4PS2*-87-244, (4) F40CW, LLF= 0.68

Y-AXIS

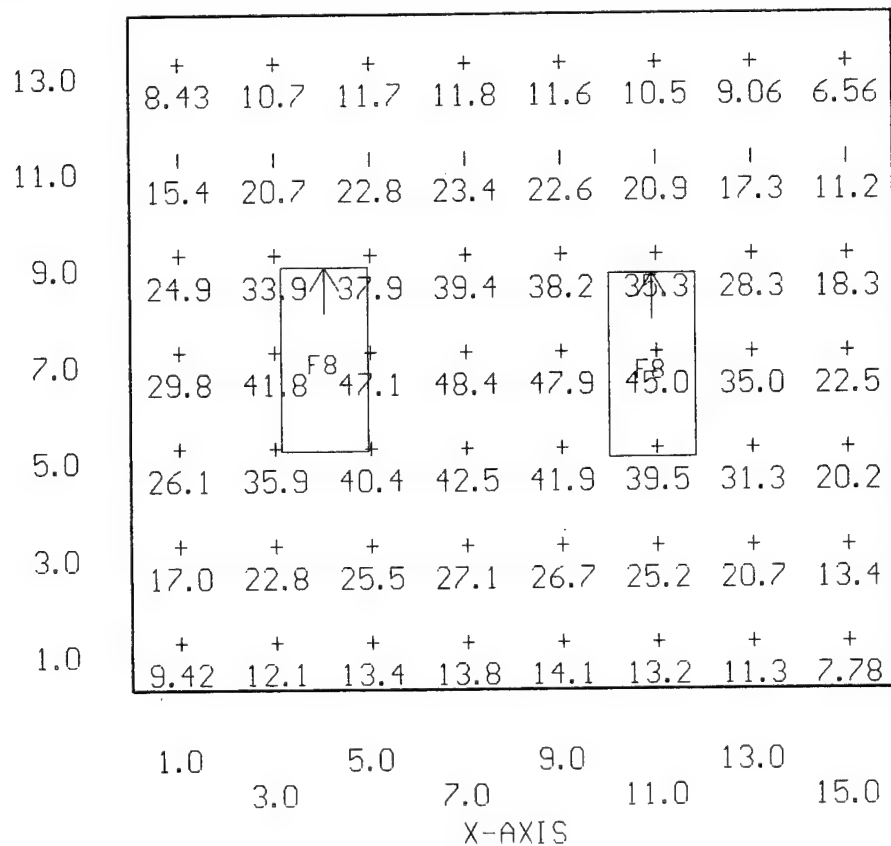


USI's LITE*PRO V2.27E Point-By-Point Numeric Output 16:54 14-Mar-95
 PROJECT: 63-120 AREA: BREAK ROOM-N GRID: Ceiling
 Values are FC, SCALE: 1 IN= 4.0FT, HORZ GRID (U), HORZ CALC, Z= 2.5
 Computed in accordance with IES recommendations

+ MIN=6.56 MAX=48.4 AVE=24.3 AVE/MIN= 3.70 MAX/MIN= 7.37

F8 <2> = 9868 COLUMBIA T84PS2*-84-242-2EOCT, <2> F032/31K, LLF= 0.66

Y-AXIS



Bldg 63-200 Summary

Present System

Fixture Type	Watts/ Fixture	Number Fixtures	Total Watts
F	166	95	15,770
G	84	9	756
Totals		104	16,526

Replacement System

Fixture Type	Watts/ Fixture	Number Fixtures	Total Watts
F2	59	22	1,298
F8	106	68	7,208
FR	61	14	854
Totals		104	9,360

63-200 Schedule

Reynolds, Smith & Hills, Inc.
4651 Salisbury Road
Jacksonville, FL 32256
Buildings Engineering

Luminaire Fixture Schedule
Generated by LitePro V2.27E
Provided and supported by USI Lighting, Inc.
Filename: 63-200 Type: Indoor

Luminaire Fixture Schedule

Project name: Lighting Survey - PBA Bldg 63-200
Prepared for: Corps of Engineers
Prepared by: C. Warren

Project #6941331
Date: 6-Jan-95
UPD: 1.4W/Sq.Ft

TYPE	DESCRIPTION	LAMP/BALLAST	V/W	QTY	REMARKS
F	2X4 4L FLUSH STATIC TROFFER LENS- .125" POLARIZED PATT.12 COLUMBIA 4PS2*-87-244	F40CW ESB	000 - 166	95	
G	2X4 2L FLUSH STATIC TROFFER LENS-PRISMATIC ACRYLIC PATT-12 COLUMBIA 4PS2*-52-242	F40CW ESB	000 - 84	9	

NOTES:

63-200 Schedule

Reynolds, Smith & Hills, Inc.
4651 Salisbury Road
Jacksonville, FL 32256
Buildings Engineering

Luminaire Fixture Schedule
Generated by LitePro V2.27E
Provided and supported by USI Lighting, Inc.
Filename: 63-200 Type: Indoor

Luminaire Fixture Schedule

Project name: Lighting Survey - PBA Bldg 63-200
Prepared for: Corps of Engineers
Prepared by: C. Warren

Project #6941331
Date: 15-Mar-95
UPD: 0.8W/Sq.Ft

TYPE	DESCRIPTION	LAMP/BALLAST	V/W	QTY	REMARKS
F2	2X4 2L FLUSH STATIC TROFFER LENS-PRISMATIC ACRYLIC PATT-19 COLUMBIA T84PS2*-84-242-2EOCT	FO32/31K EOCT	000 - 59	22	
F8	2X4 4L FLUSH STATIC TROFFER LENS-PRISMATIC ACRYLIC PATT-19 COLUMBIA T84PS2*-84-244-4EOCT	FO32/31K EOCT	000 - 106	68	
FR	2X4 ACRYLIC LENSED TROFFER SILVER NORMAL BEAM REFLECTOR METALOPTICS 24TRSO42EP11	FO32/35K EOCT	000 - 61	14	

NOTES:

63-200 Areas

Reynolds, Smith & Hills, Inc.
4651 Salisbury Road
Jacksonville, FL 32256
Buildings Engineering

Project Area Summary
Generated by LitePro V2.27E
Provided and supported by USI Lighting, Inc.
Filename: 63-200 Type: Indoor

Project Area Summary

Project name: Lighting Survey - PBA Bldg 63-200
Prepared for: Corps of Engineers
Prepared by: C. Warren

Project #6941331
Date: 15-Mar-95
UPD: 1.1W/Sq.Ft

AREA NAME	DIMENSIONS	LUMINAIRES	W/SQ.FT	QTY
MAIN ASSEMBLY	154x68x10Ft	(82) Type F	1.3	1
MAIN ASSEMBLY-N	154x68x10Ft	(68) Type F8 (14) Type FR	0.8	1
BREAK AREA	28x37x8Ft	(13) Type F	2.1	1
BREAK AREA-N	28x37x8Ft	(13) Type F2	0.7	1
STORAGE	28x6x8Ft	(3) Type G	1.5	1
STORAGE-N	28x6x8Ft	(3) Type F2	1.1	1
OFFICE 1	11x14x8Ft	(2) Type G	1.1	1
OFFICE 1-N	11x14x8Ft	(2) Type F2	0.8	1
OFFICE 2	16x20x8Ft	(4) Type G	1.0	1
OFFICE 2-N	16x20x8Ft	(4) Type F2	0.7	1

NOTES:

63-200 Calculations

Reynolds, Smith & Hills, Inc.
 4651 Salisbury Road
 Jacksonville, FL 32256
 Buildings Engineering

Project Calculation Summary
 Generated by LitePro V2.27E
 Provided and supported by USI Lighting, Inc.
 Filename: 63-200 Type: Indoor

 Project Calculation Summary

Project name: Lighting Survey - PBA Bldg 63-200
 Prepared for: Corps of Engineers
 Prepared by: C. Warren

Project #6941331
 Date: 15-Mar-95
 UPD: 1.1W/Sq.Ft

AREA NAME	DIMENSIONS	GRID NAME	AVE	MAX	MIN
MAIN ASSEMBLY	154x68x10Ft	Ceiling	<+> 39.6	97.3	0.0
MAIN ASSEMBLY-N	154x68x10Ft	Ceiling	<+> 44.1	71.9	0.0
BREAK AREA	28x37x8Ft	Ceiling	<+> 55.3	113.2	0.3
BREAK AREA-N	28x37x8Ft	Ceiling	<+> 33.4	67.8	0.2
STORAGE	28x6x8Ft	Ceiling	<+> 37.5	47.7	29.2
STORAGE-N	28x6x8Ft	Ceiling	<+> 35.9	46.1	28.2
OFFICE 1	11x14x8Ft	Ceiling	<+> 30.9	46.9	9.5
OFFICE 1-N	11x14x8Ft	Ceiling	<+> 29.6	46.1	7.2
OFFICE 2	16x20x8Ft	Ceiling	<+> 36.8	68.0	14.4
OFFICE 2-N	16x20x8Ft	Ceiling	<+> 35.1	67.3	12.2

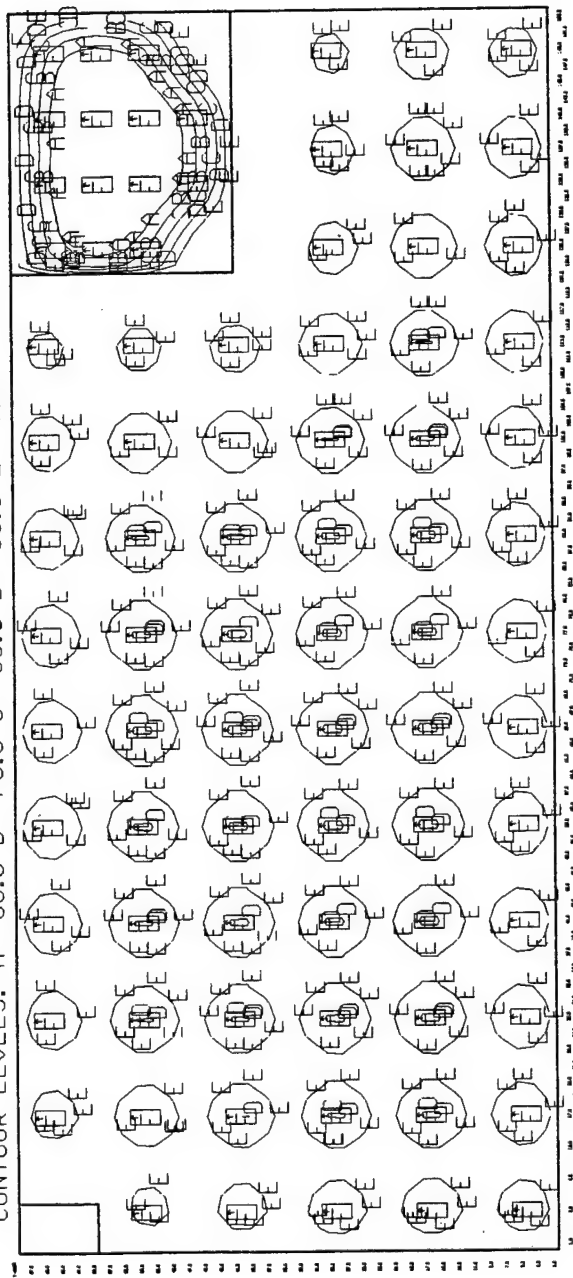
NOTES:

USI's LITE*PRC V2.27E Point-By-Point Numeric Output 17:09 14-Mar-95
 PROJECT: 63-200 AREA: MAIN ASSEMBLY GRID: Ceiling
 Values are FC, SCALE: 1 IN= 24.0FT, HORZ GRID (U), FORZ CALC, Z= 2.5
 Computed in accordance with IES recommendations

+ MIN=0.00 MAX=97.3 AVE=39.6 AVE/MIN=N/A MAX/MIN=N/A

F <82> = 9753 COLUMBIA 4PS2*-87-244, (4) F40CW, LLF= 0.68

CONTOUR LEVELS: A= 80.0 B= 70.0 C= 60.0 D= 50.0 E= 40.0

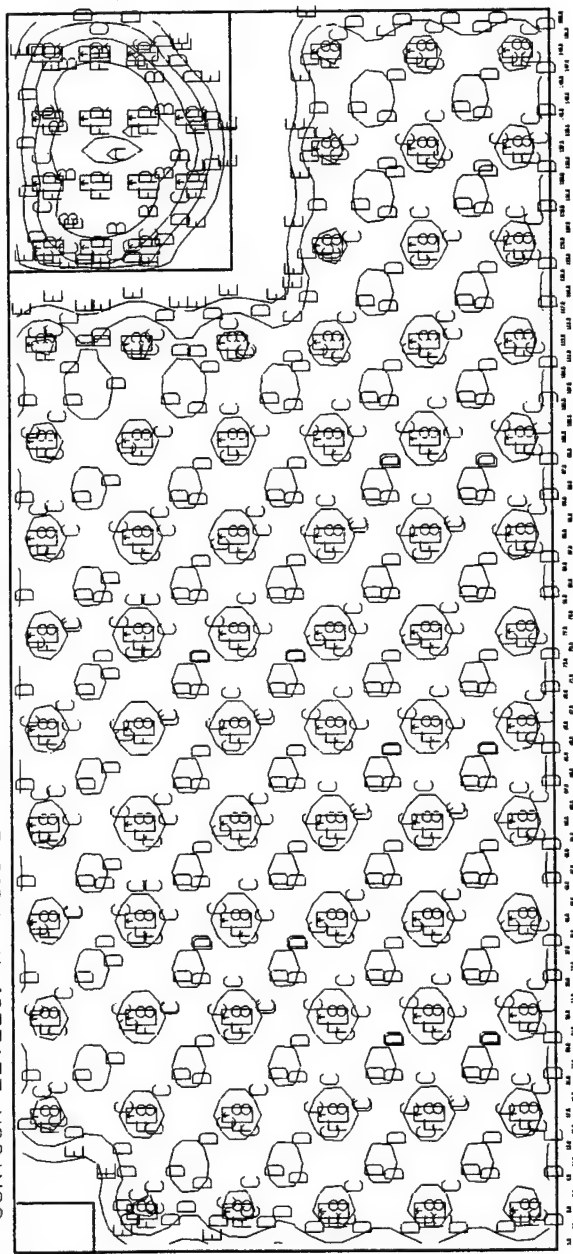


USI's LITE*PRO V2.27E Point-By-Point Numeric Output 09:32 15-Mar-95
 PROJECT: 63-200 AREA: MAIN ASSEMBLY-N GRID: Ceiling
 Values are FC, SCALE: 1 IN= 24.0FT, HORZ GRID (U), VORZ CALC, Z= 2.5
 Computed in accordance with IES recommendations

+ MIN=0.00 MAX=71.9 AVE=44.1 AVE/MIN=N/A MAX/MIN=N/A

F8 <68> = A9750 COLUMBIA T84PS2*-84-244-4ECCT, (4) F032/31K, LLF= 0.67
 FR <14> = T10518 METALOPTICS 24TR042EP11, (2) F032/35K, LLF= C.69

CONTOUR LEVELS: A= 70.0 B= 60.0 C= 50.0 D= 40.0 E= 30.0

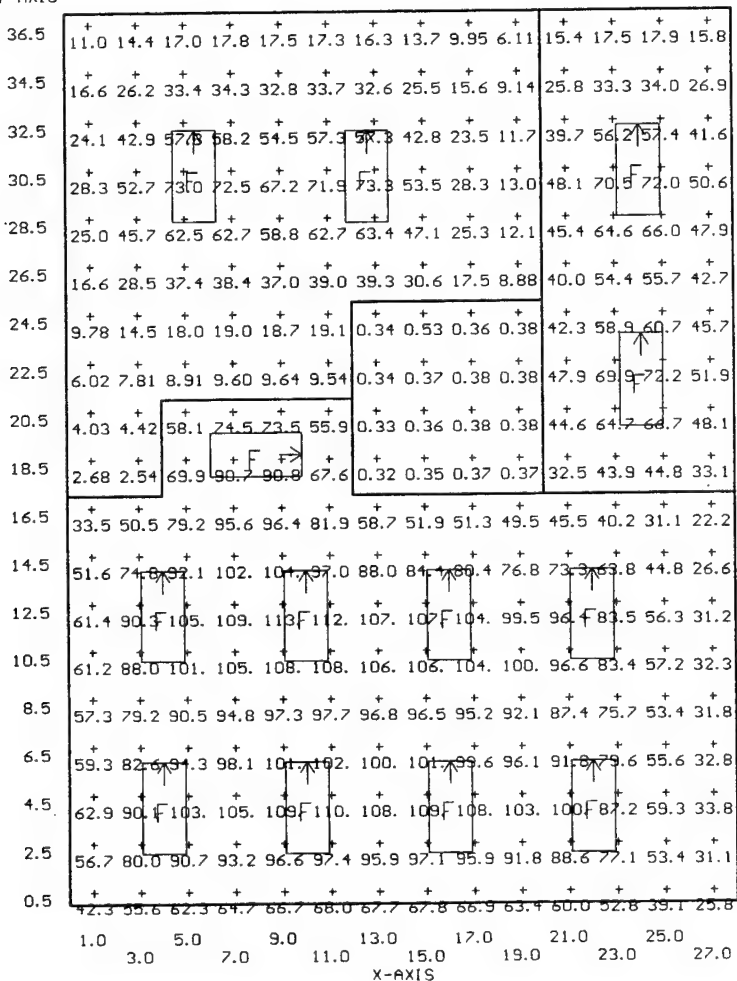


USI's LITE*PRO V2.27E Point-By-Point Numeric Output 11:06 6-Jan-95
 PROJECT: 63-200 AREA: BREAK AREA GRID: Ceiling
 Values are FC, SCALE: 1 IN= 8.0FT, HORZ GRID (U), HORZ CALC, Z= 2.5
 Computed in accordance with IES recommendations

+ MIN=0.32 MAX=113. AVE=55.3 AVE/MIN= 168.68 MAX/MIN= 345.53

F <13> = 9753 COLUMBIA 4PS2*-87-244, (4) F40CW, LLF= 0.68

Y-AXIS

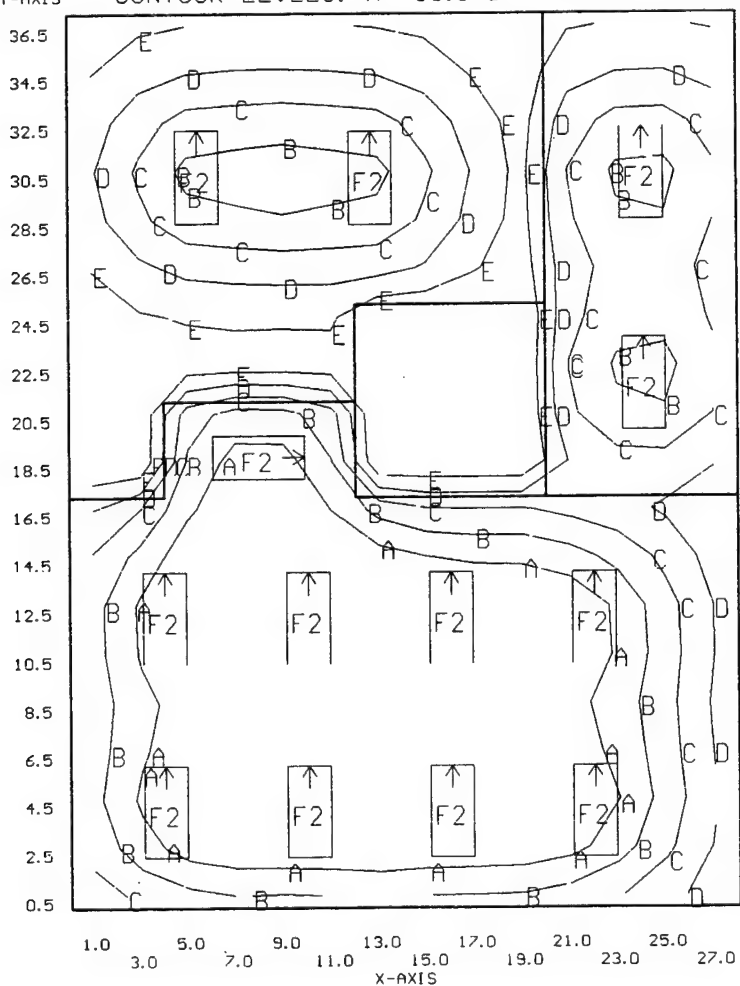


USI's LITE*PRO V2.27E Point-By-Point Numeric Output 09:39 15-Mar-95
 PROJECT: 63-200 AREA: BREAK AREA-N GRID: Ceiling
 Values are FC, SCALE: 1 IN= 8.0FT, HORZ GRID (U), HORZ CALC, Z= 2.5
 Computed in accordance with IES recommendations

+ MIN=0.20 MAX=67.8 AVE=33.4 AVE/MIN= 164.83 MAX/MIN= 334.23

F2 <13> = 9868 COLUMBIA T84PS2*-84-242-2EOCT, (2) F032/31K, LLF= 0.66

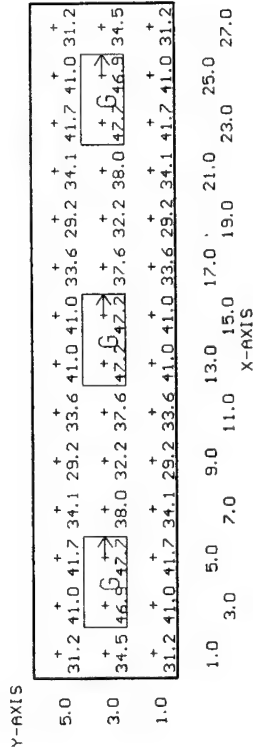
Y-AXIS CONTOUR LEVELS: A= 50.0 B= 40.0 C= 30.0 D= 20.0 E= 10.0



USI's LITE*PRO V2.27E Point-By-Point Numeric Output 11:15 6-Jan-95
 PROJECT: 63-200 AREA: STORAGE GRID: Ceiling
 Values are FC, SCALE: 1 IN= 8.0FT, HORZ GRID (U), HORZ CALC, Z= 2.5
 Computed in accordance with IES recommendations

+ MIN=29.2 MAX=47.7 AVE=37.5 AVE/MIN= 1.28 MAX/MIN= 1.63

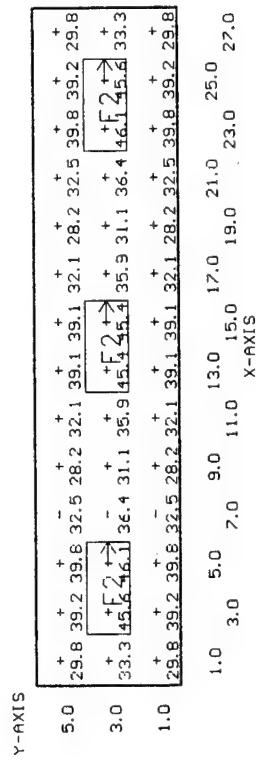
G <3> = 9975 COLUMBIA 4PS2*-52-242, (2) F40CW, LLF= 0.68



USI's LITE*PRO V2.27E Point-3y-Point Numeric Output 09:41 15-Mar-95
 PROJECT: 63-200 AREA: STORAGE-N GRID: Ceiling
 Values are °C, SCALE: 1 IN= 8.0FT, HORZ GRID (U), HORZ CALC, Z= 2.5
 Computed in accordance with IES recommendations

+ MIN=28.2 MAX=46.1 AVE=35.9 AVE/MIN= 1.28 MAX/MIN= 1.64

F2 <3> = 9858 COLUMBIA T84PS2*-84-242-2ECCT, <2> F032/31K, LLF= 0.66

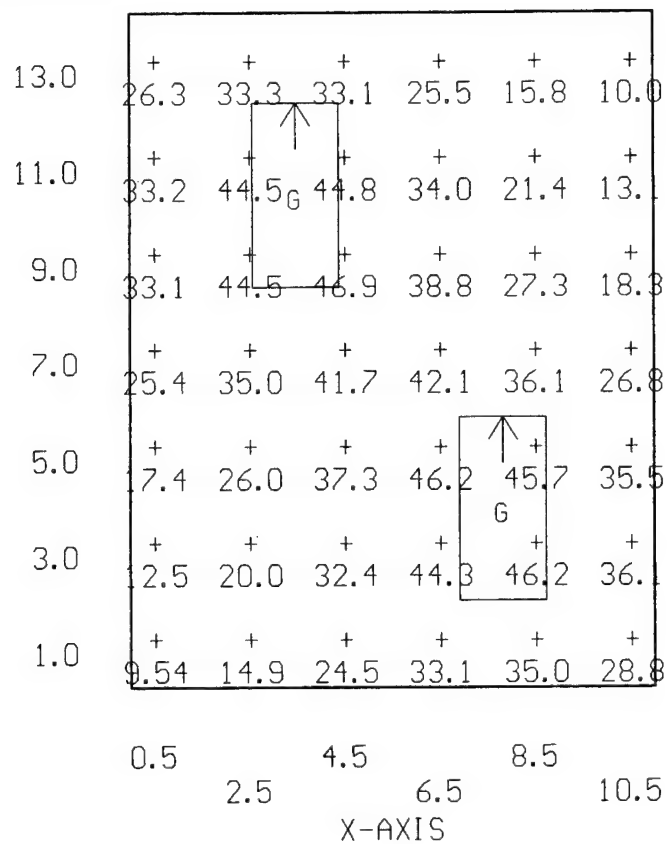


USI's LITE*PRO V2.27E Point-By-Point Numeric Output 11:19 6-Jan-95
 PROJECT: 63-200 AREA: OFFICE 1 GRID: Ceiling
 Values are FC, SCALE: 1 IN= 4.0FT, HORZ GRID (U), HORZ CALC, Z= 2.5
 Computed in accordance with IES recommendations

+ MIN=9.54 MAX=46.9 AVE=30.9 AVE/MIN= 3.24 MAX/MIN= 4.92

G <2> = 9975 COLUMBIA 4PS2*-52-242, <2> F40CW, LLF= 0.68

Y-AXIS



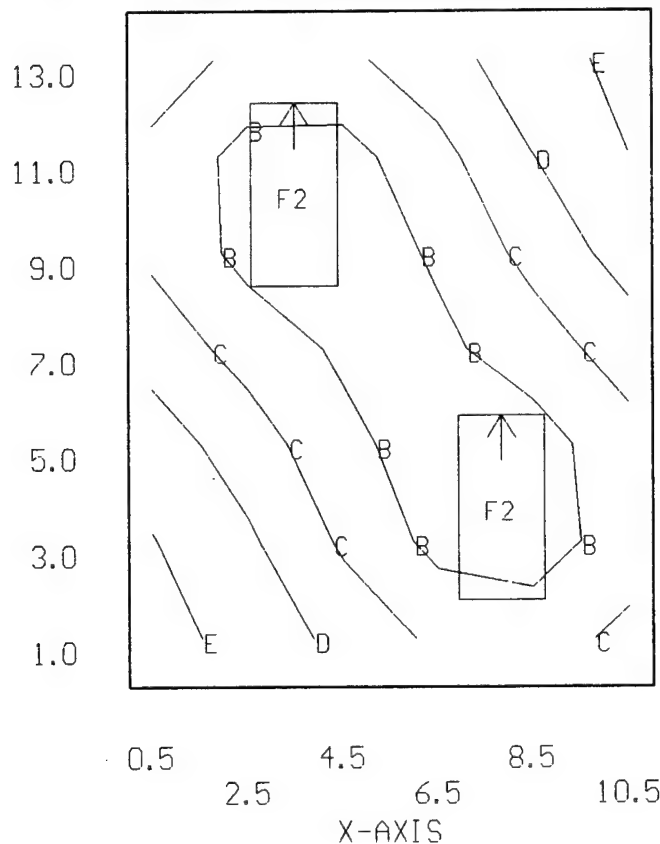
USI's LITE*PRO V2.27E Point-By-Point Numeric Output 09:44 15-Mar-95
 PROJECT: 63-200 AREA: OFFICE 1-N GRID: Ceiling
 Values are FC, SCALE: 1 IN= 4.0FT, HORZ GRID (U), HORZ CALC, Z= 2.5
 Computed in accordance with IES recommendations

+ MIN=7.17 MAX=46.1 AVE=29.6 AVE/MIN= 4.13 MAX/MIN= 6.43

F2 <2> = 9868 COLUMBIA T84PS2*-84-242-2EOCT, <2> F032/31K, LLF= 0.66

Y-AXIS

CONTOUR LEVELS: A= 50.0 B= 40.0 C= 30.0 D= 20.0 E= 10.0

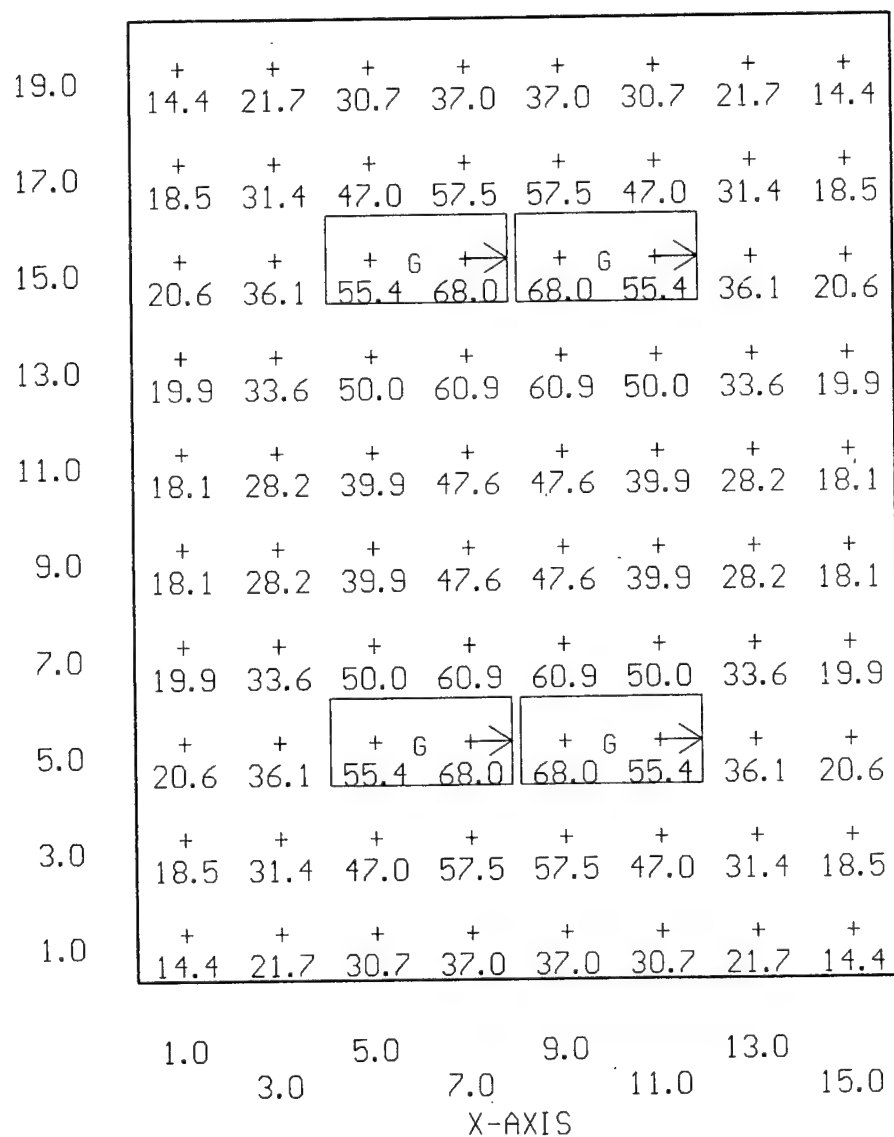


USI's LITE*PRO V2.27E Point-By-Point Numeric Output 11:26 6-Jan-95
 PROJECT: 63-200 AREA: OFFICE 2 GRID: Ceiling
 Values are FC, SCALE: 1 IN= 4.0FT, HORZ GRID (U), HORZ CALC, Z= 2.5
 Computed in accordance with IES recommendations

+ MIN=14.4 MAX=68.0 AVE=36.8 AVE/MIN= 2.55 MAX/MIN= 4.71

G <4> = 9975 COLUMBIA 4PS2*-52-242, (2) F40CW, LLF= 0.68

Y-AXIS



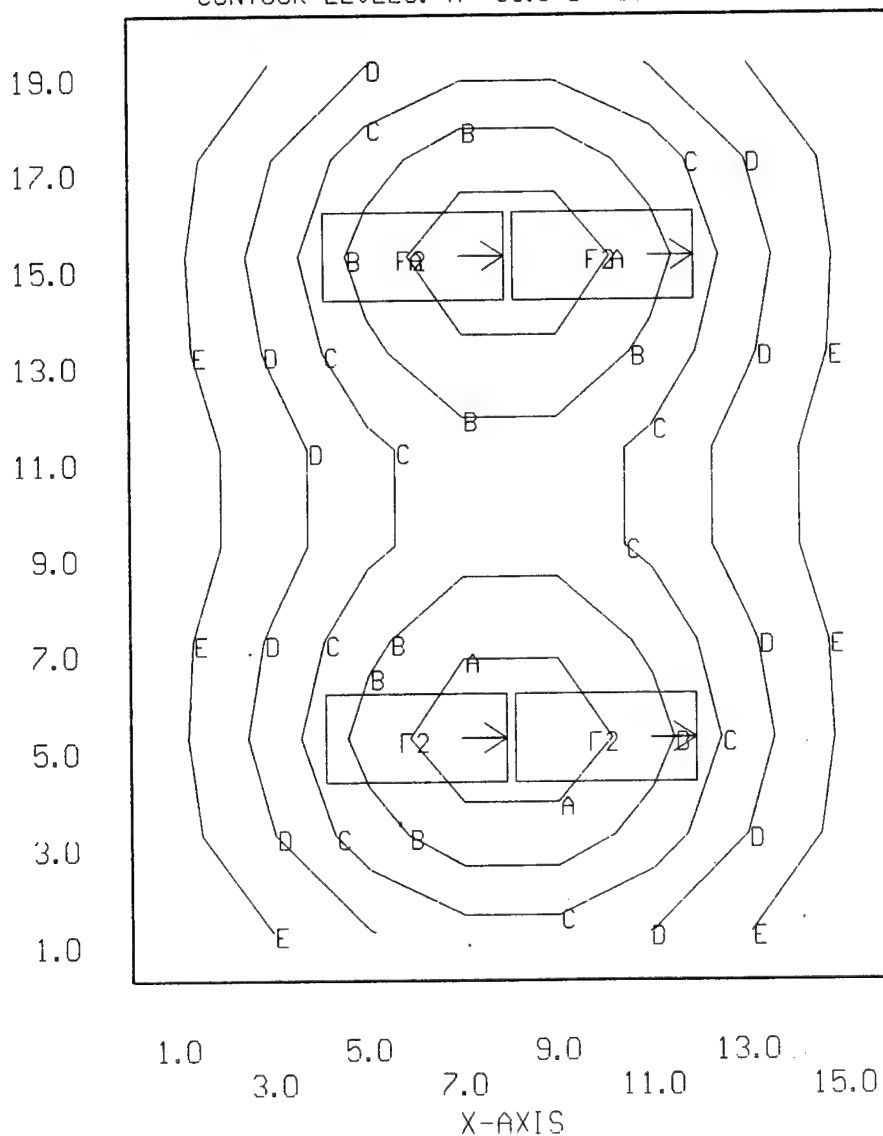
USI's LITE*PRO V2.27E Point-By-Point Numeric Output 09:46 15-Mar-95
 PROJECT: 63-200 AREA: OFFICE 2-N GRID: Ceiling
 Values are FC, SCALE: 1 IN= 4.0FT, HORZ GRID (U), HORZ CALC, Z= 2.5
 Computed in accordance with IES recommendations

+ MIN=12.2 MAX=67.3 AVE=35.1 AVE/MIN= 2.87 MAX/MIN= 5.51

F2 <4> = 9868 COLUMBIA T84PS2*-84-242-2EOCT, (2) F032/31K, LLF= 0.66

Y-AXIS

CONTOUR LEVELS: A= 60.0 B= 50.0 C= 40.0 D= 30.0 E= 20.0



Bldg 63-210 Summary

Present System

Fixture Type	Watts/ Fixture	Number Fixtures	Total Watts
C3	123	68	8,364
G	82	32	2,624
Z1	100	3	300
Totals		103	11,288

Replacement System

Fixture Type	Watts/ Fixture	Number Fixtures	Total Watts
C8	105	53	5,565
G8	59	32	1,888
Z1	100	3	300
Totals		88	7,753

63-210 Schedule

Reynolds, Smith & Hills, Inc.
4651 Salisbury Road
Jacksonville, FL 32256
Buildings Engineering

Luminaire Fixture Schedule
Generated by LitePro V2.27E
Provided and supported by USI Lighting, Inc.
Filename: 63-210 Type: Indoor

Luminaire Fixture Schedule

Project name: Lighting Survey - PBA
Prepared for: Corps of Engineers
Prepared by: C. Warren

Project #6941331
Date: 24-Jan-95
UPD: 1.0W/Sq.Ft

TYPE	DESCRIPTION	LAMP/BALLAST	V/W	QTY	REMARKS
C3	11"X8' 2L INDUSTRIAL OPEN BOTTOM- NO SHIELDING COLUMBIA CSR296	F96T12/CW/WM ESB	000 - 123	68	
G	2'X4' 2L STATIC GRID TROFFER LENS- .125" THK PRISMATIC A12 COLUMBIA 2SG240-EXA.125NOM	F40CW ESB	000 - 82	32	
Z1	6" RECESSED ROUND DOWNLIGHT OPEN- BL.BAFFLE W/ WIDE TRIM PRESCOLITE PBX-TB12	100A19/IF NA	000 - 100	3	

NOTES:

63-210 Schedule

Reynolds, Smith & Hills, Inc.
4651 Salisbury Road
Jacksonville, FL 32256
Buildings Engineering

Luminaire Fixture Schedule
Generated by LitePro V2.27E
Provided and supported by USI Lighting, Inc.
Filename: 63-210 Type: Indoor

Luminaire Fixture Schedule

Project name: Lighting Survey - PBA
Prepared for: Corps of Engineers
Prepared by: C. Warren

Project #6941331
Date: 15-Mar-95
UPD: 0.7W/Sq.Ft

TYPE	DESCRIPTION	LAMP/BALLAST	V/W	QTY	REMARKS
C8	11"X8' 2L INDUSTRIAL OPEN BOTTOM- NO SHIELDING COLUMBIA CSR296	FO96/735 EOCT	000 - 105	53	
G8	2X4 2L FLUSH STATIC TROFFER LENS-PRISMATIC ACRYLIC PATT-19 COLUMBIA T84PS2*-84-242-2EOCT	FO32/31K EOCT	000 - 59	32	
Z1	6" RECESSED ROUND DOWNLIGHT OPEN- BL.BAFFLE W/ WIDE TRIM PRESCOLITE PBX-TB12	100A19/IF NA	000 - 100	3	

NOTES:

Reynolds, Smith & Hills, Inc.
 4651 Salisbury Road
 Jacksonville, FL 32256
 Buildings Engineering

Project Area Summary
 Generated by LitePro V2.27E
 Provided and supported by USI Lighting, Inc.
 Filename: 63-210 Type: Indoor

Project Area Summary

Project name: Lighting Survey - PBA
 Prepared for: Corps of Engineers
 Prepared by: C. Warren

Project #6941331
 Date: 15-Mar-95
 UPD: 0.9W/Sq.Ft

AREA NAME	DIMENSIONS	LUMINAIRES	W/SQ.FT	QTY
MAIN WORK AREA	126x60x10Ft	(65) Type C3	1.1	1
MAIN AREA-N	126x60x10Ft	(50) Type C8	0.7	1
M43 TEST	30x30x8Ft	(15) Type G	1.4	1
3 TEST-N	30x30x8Ft	(15) Type G8	1.0	1
STORAGE ROOMS	71x12x10Ft	(3) Type C3	0.4	1
STORAGE ROOMS-N	71x12x10Ft	(3) Type C8	0.4	1
DRYING ROOM	20x14x10Ft	(2) Type Z1	0.7	1
BREAK ROOM	28x36x8Ft	(10) Type G (1) Type Z1	0.9	1
BREAK ROOM-N	28x36x8Ft	(10) Type G8 (1) Type Z1	0.7	1
OFFICE/TOOL RM	28x20x8Ft	(7) Type G	1.0	1
OFF/TOOL RM-N	28x20x8Ft	(7) Type G8	0.7	1

NOTES:

63-210 Calculations

Reynolds, Smith & Hills, Inc.
 4651 Salisbury Road
 Jacksonville, FL 32256
 Buildings Engineering

Project Calculation Summary
 Generated by LitePro V2.27E
 Provided and supported by USI Lighting, Inc.
 Filename: 63-210 Type: Indoor

Project Calculation Summary

Project name: Lighting Survey - PBA
 Prepared for: Corps of Engineers
 Prepared by: C. Warren

Project #6941331
 Date: 15-Mar-95
 UPD: 0.9W/Sq.Ft

AREA NAME	DIMENSIONS	GRID NAME	AVE	MAX	MIN
MAIN WORK AREA	126x60x10Ft	Ceiling	<+> 58.5	229.7	0.0
MAIN AREA-N	126x60x10Ft	Ceiling	<+> 43.8	128.8	0.0
M43 TEST	30x30x8Ft	Ceiling	<+> 52.7	96.3	13.9
M43 TEST-N	30x30x8Ft	Ceiling	<+> 48.1	90.5	12.3
STORAGE ROOMS	71x12x10Ft	Ceiling	<+> 15.0	31.5	2.6
STORAGE ROOMS-N	71x12x10Ft	Ceiling	<+> 14.7	30.9	2.6
DRYING ROOM	20x14x10Ft	Ceiling	<+> 3.6	15.4	0.4
BREAK ROOM	28x36x8Ft	Ceiling	<+> 28.4	61.3	0.0
BREAK ROOM-N	28x36x8Ft	Ceiling	<+> 26.2	58.3	0.0
OFFICE/TOOL RM	28x20x8Ft	Ceiling	<+> 34.8	67.6	9.4
OFF/TOOL RM-N	28x20x8Ft	Ceiling	<+> 32.3	63.7	7.8

NOTES:

USI's LITE*PRO V2.27E Point-By-Point Numeric Output 11:44 24-Jan-95
 PROJECT: 63-210 AREA: MAIN WORK AREA GRID: Ceiling
 Values are FC, SCALE: 1 IN= 24.0FT, HORZ GRID (U), HORZ CALC, Z= 2.5
 Computed in accordance with IES recommendations

+ MIN=0.00 MAX=230. AVE=58.5 AVE/MIN=N/A MAX/MIN=N/A

C3 <65> = K7993 COLUMBIA CSR296, <2> F96T12/CU/UM, LLF= 0.69

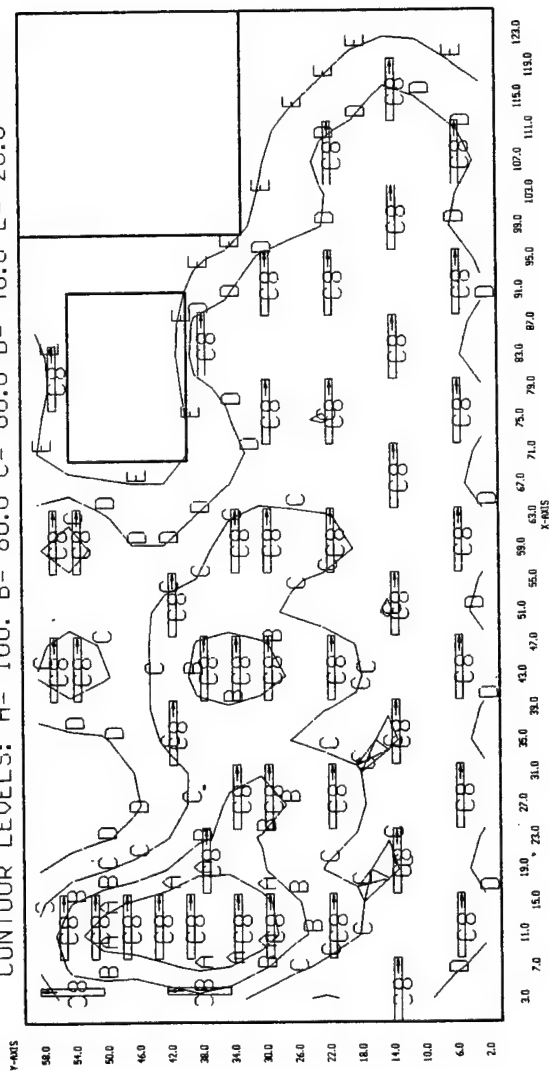
58.0	77.1	95.5	106	57.9	65.6	46.5	33.2	38.6	45.2	62.1	72.3	84.6	97.3	114.4	131.5	148.6	165.7	182.8	200.0	217.1	234.2	251.3	268.4	285.5	302.6	319.7	336.8	353.9	371.0	388.1	405.2	422.3	439.4	456.5	473.6	490.7	507.8	524.9	542.0	559.1	576.2	593.3	610.4	627.5	644.6	661.7	678.8	695.9	713.0	730.1	747.2	764.3	781.4	798.5	815.6	832.7	849.8	866.9	884.0	901.1	918.2	935.3	952.4	969.5	986.6	1003.7	1020.8	1037.9	1055.0	1072.1	1089.2	1106.3	1123.4	1140.5	1157.6	1174.7	1191.8	1208.9	1226.0	1243.1	1260.2	1277.3	1294.4	1311.5	1328.6	1345.7	1362.8	1379.9	1397.0	1414.1	1431.2	1448.3	1465.4	1482.5	1499.6	1516.7	1533.8	1550.9	1568.0	1585.1	1602.2	1619.3	1636.4	1653.5	1670.6	1687.7	1704.8	1721.9	1739.0	1756.1	1773.2	1790.3	1807.4	1824.5	1841.6	1858.7	1875.8	1892.9	1910.0	1927.1	1944.2	1961.3	1978.4	1995.5	2012.6	2029.7	2046.8	2063.9	2081.0	2098.1	2115.2	2132.3	2149.4	2166.5	2183.6	2200.7	2217.8	2234.9	2252.0	2269.1	2286.2	2303.3	2320.4	2337.5	2354.6	2371.7	2388.8	2405.9	2423.0	2440.1	2457.2	2474.3	2491.4	2508.5	2525.6	2542.7	2559.8	2576.9	2594.0	2611.1	2628.2	2645.3	2662.4	2679.5	2696.6	2713.7	2730.8	2747.9	2765.0	2782.1	2799.2	2816.3	2833.4	2850.5	2867.6	2884.7	2901.8	2918.9	2936.0	2953.1	2970.2	2987.3	3004.4	3021.5	3038.6	3055.7	3072.8	3089.9	3107.0	3124.1	3141.2	3158.3	3175.4	3192.5	3209.6	3226.7	3243.8	3260.8	3277.9	3295.0	3312.1	3329.2	3346.3	3363.4	3380.5	3397.6	3414.7	3431.8	3448.9	3466.0	3483.1	3500.2	3517.3	3534.4	3551.5	3568.6	3585.7	3602.8	3619.9	3637.0	3654.1	3671.2	3688.3	3705.4	3722.5	3739.6	3756.7	3773.8	3790.9	3808.0	3825.1	3842.2	3859.3	3876.4	3893.5	3910.6	3927.7	3944.8	3961.9	3979.0	3996.1	4013.2	4030.3	4047.4	4064.5	4081.6	4098.7	4115.8	4132.9	4150.0	4167.1	4184.2	4201.3	4218.4	4235.5	4252.6	4269.7	4286.8	4303.9	4321.0	4338.1	4355.2	4372.3	4389.4	4406.5	4423.6	4440.7	4457.8	4474.9	4492.0	4509.1	4526.2	4543.3	4560.4	4577.5	4594.6	4611.7	4628.8	4645.9	4663.0	4680.1	4697.2	4714.3	4731.4	4748.5	4765.6	4782.7	4799.8	4816.9	4834.0	4851.1	4868.2	4885.3	4902.4	4919.5	4936.6	4953.7	4970.8	4987.9	5005.0	5022.1	5039.2	5056.3	5073.4	5090.5	5107.6	5124.7	5141.8	5158.9	5176.0	5193.1	5210.2	5227.3	5244.4	5261.5	5278.6	5295.7	5312.8	5329.9	5347.0	5364.1	5381.2	5398.3	5415.4	5432.5	5449.6	5466.7	5483.8	5500.9	5518.0	5535.1	5552.2	5569.3	5586.4	5603.5	5620.6	5637.7	5654.8	5671.9	5689.0	5706.1	5723.2	5740.3	5757.4	5774.5	5791.6	5808.7	5825.8	5842.9	5860.0	5877.1	5894.2	5911.3	5928.4	5945.5	5962.6	5979.7	5996.8	6013.9	6031.0	6048.1	6065.2	6082.3	6099.4	6116.5	6133.6	6150.7	6167.8	6184.9	6202.0	6219.1	6236.2	6253.3	6270.4	6287.5	6304.6	6321.7	6338.8	6355.9	6373.0	6390.1	6407.2	6424.3	6441.4	6458.5	6475.6	6492.7	6509.8	6526.9	6544.0	6561.1	6578.2	6595.3	6612.4	6629.5	6646.6	6663.7	6680.8	6697.9	6715.0	6732.1	6749.2	6766.3	6783.4	6800.5	6817.6	6834.7	6851.8	6868.9	6886.0	6903.1	6920.2	6937.3	6954.4	6971.5	6988.6	7005.7	7022.8	7039.9	7057.0	7074.1	7091.2	7108.3	7125.4	7142.5	7159.6	7176.7	7193.8	7210.9	7228.0	7245.1	7262.2	7279.3	7296.4	7313.5	7330.6	7347.7	7364.8	7381.9	7399.0	7416.1	7433.2	7450.3	7467.4	7484.5	7501.6	7518.7	7535.8	7552.9	7570.0	7587.1	7604.2	7621.3	7638.4	7655.5	7672.6	7689.7	7706.8	7723.9	7741.0	7758.1	7775.2	7792.3	7809.4	7826.5	7843.6	7860.7	7877.8	7894.9	7912.0	7929.1	7946.2	7963.3	7980.4	7997.5	8014.6	8031.7	8048.8	8065.9	8083.0	8100.1	8117.2	8134.3	8151.4	8168.5	8185.6	8202.7	8219.8	8236.9	8254.0	8271.1	8288.2	8305.3	8322.4	8339.5	8356.6	8373.7	8390.8	8407.9	8425.0	8442.1	8459.2	8476.3	8493.4	8510.5	8527.6	8544.7	8561.8	8578.9	8596.0	8613.1	8630.2	8647.3	8664.4	8681.5	8698.6	8715.7	8732.8	8749.9	8767.0	8784.1	8801.2	8818.3	8835.4	8852.5	8869.6	8886.7	8903.8	8920.9	8938.0	8955.1	8972.2	8989.3	9006.4	9023.5	9040.6	9057.7	9074.8	9091.9	9109.0	9126.1	9143.2	9160.3	9177.4	9194.5	9211.6	9228.7	9245.8	9262.9	9280.0	9297.1	9314.2	9331.3	9348.4	9365.5	9382.6	9399.7	9416.8	9433.9	9451.0	9468.1	9485.2	9502.3	9519.4	9536.5	9553.6	9570.7	9587.8	9604.9	9622.0	9639.1	9656.2	9673.3	9690.4	9707.5	9724.6	9741.7	9758.8	9775.9	9793.0	9810.1	9827.2	9844.3	9861.4	9878.5	9895.6	9912.7	9929.8	9946.9	9964.0	9981.1	9998.2	10015.3	10032.4	10049.5	10066.6	10083.7	10100.8	10117.9	10135.0	10152.1	10169.2	10186.3	10203.4	10220.5	10237.6	10254.7	10271.8	10288.9	10306.0	10323.1	10340.2	10357.3	10374.4	10391.5	10408.6	10425.7	10442.8	10459.9	10477.0	10494.1	10511.2	10528.3	10545.4	10562.5	10579.6	10596.7	10613.8	10630.9	10648.0	10665.1	10682.2	10699.3	10716.4	10733.5	10750.6	10767.7	10784.8	10801.9	10819.0	10836.1	10853.2	10870.3	10887.4	10904.5	10921.6	10938.7	10955.8	10972.9	10990.0	11007.1	11024.2	11041.3	11058.4	11075.5	11092.6	11109.7	11126.8	11143.9	11161.0	11178.1	11195.2	11212.3	11229.4	11246.5	11263.6	11280.7	11297.8	11314.9	11332.0	11349.1	11366.2	11383.3	11400.4	11417.5	11434.6	11451.7	11468.8	11485.9	11503.0	11520.1	11537.2	11554.3	11571.4	11588.5	11605.6	11622.7	11639.8	11656.9	11674.0	11691.1	11708.2	11725.3	11742.4	11759.5	11776.6	11793.7	11810.8	11827.9	11845.0	11862.1	11879.2	11896.3	11913.4	11930.5	11947.6	11964.7	11981.8	11998.9	12016.0	12033.1	12050.2	12067.3	12084.4	12101.5	12118.6	12135.7	12152.8	12169.9	12187.0	12204.1	12221.2	12238.3	12255.4	12272.5	12289.6	12306.7	12323.8	12340.9	12358.0	12375.1	12392.2	12409.3	12426.4	12443.5	12460.6	12477.7	12494.8	12511.9	12529.0	12546.1	12563.2	12580.3	12597.4	12614.5	12631.6	12648.7	12665.8	12682.9	12699.0	12716.1	12733.2	12750.3	12767.4	12784.5	12801.6	12818.7	12835.8	12852.9	12870.0	12887.1	12904.2	12921.3	12938.4	12955.5	12972.6	12989.7	13006.8	13023.9	13041.0	13058.1	13075.2	13092.3	13109.4	13126.5	13143.6	13160.7	13177.8	13194.9	13212.0	13229.1	13246.2	13263.3	13280.4	13297.5	13314.6	13331.7	13348.8	13365.9	13383.0	13400.1	13417.2	13434.3	13451.4	13468.5	13485.6	13502.7	13519.8	13536.9	13554.0	13571.1	13588.2	13605.3	13622.4	13639.5	13656.6	13673.7	13690.8	13707.9	13725.0	13742.1	13759.2	13776.3	13793.4	13810.5	13827.6	13844.7	13861.8	13878.9	13896.0	13913.1	13930.2	13947.3	13964.4	13981.5	13998.6	14015.7	14032.8	14049.9	14067.0	14084.1	14101.2	14118.3	14135.4	14152.5	14169.6	14186.7	14203.8	14220.9	14238.0	14255.1	14272.2	14289.3	14306.4	14323.5	14340.6	14357.7	14374.8	14391.9	14409.0	14426.1	14443.2	14460.3	14477.4	14494.5	14511.6	14528.7	14545.8	14562.9	14580.0	14597.1	14614.2	14631.3	14648.4	14665.5	14682.6	14699.7	14716.8	14733.9	14751.0	14768.1	14785.2	14802.3	14819.4	14836.5	14853.6	14870.7	14887.8	14904.9	14922.0	14939.1	14956.2	14973.3	14990.4	15007.5	15024.6	15041.7	15058.8	15075.9	15093.0	15110.1	15127.2	15144.3	15161.4	15178.5	15195.6	15212.7	15229.8	15246.9	15264.0	15281.1	15298.2	15315.3	15332.4	15349.5	15366.6	15383.7	15400.8	15417.9	15435.0	15452.1	15469.2	15486.3	15503.4	15520.5	15537.6	15554.7	15571.8	15588.9	15606.0	15623.1	15640.2	15657.3	15674.4	15691.5	15708.6	15725.7	15742.8	15759.9	15777.0	15794.1	15811.2	15828.3	15845.4	15862.5	15879.6	15896.7	15913.8	15930.9	15948.0	15965.1	15982.2	16000.3	16017.4	16034.5	16051.6	16068.7	16085.8	16102.9	16120.0	16137.1	16154.2	16171.3	16188.4	16205.5	16222.6	16239.7	16256.8	16273.9	16291.0	16308.1	16325.2	16342.3	16359.4	16376.5	16393.6	16410.7	16427.8	16444.9	16462.0	16479.1	16496.2	16513.3	16530.4	16547.5	16564.6	16581.7	16598.8	16615.9	16633.0	16650.1	16667.2	16684.3	16701.4	16718.5	16735.6	16752.7	16769.8	16786.9	16804.0	16821.1	16838.2	16855.3	16872.4	16889.5	16906.6	16923.7	16940.8	16957.9	16975.0	16992.1	17009.2	17026.3	17043.4	17060.5	17077.6	17094.7	17111.8	17128.9	17146.0	17163.1	17180.2	17197.3	17214.4	17231.5	17248.6	17265.7	17282.8	17299.9	17317.0	17334.1	17351.2	17368.3	17385.4	17402.5	17419.6	17436.7	17453.8	17470.9	17488.0	17505.1	17522.2	17539.3	17556.4	17573.5	17590.6	17607.7	17624.8	17641.9	17659.0	17676.1	17693.2	17710.3	17727.4	17744.5	17761.6.
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USI's LITE*PRO V2.27E Point-By-Point Numeric Output 10:09 15-Mar-95
 PROJECT: 63-210 AREA: MAIN AREA-N GRID: Ceiling
 Values are FC, SCALE: 1 IN= 24.0FT, HORZ GRID (U), HORZ CALC, Z= 2.5
 Computed in accordance with IES recommendations

+ MIN=0.00 MAX=129. AVE=43.8 AVE/MIN=N/A MAX/MIN=N/A

C8 <50> = K7993 COLUMBIA CSR296, <2> FJ96/735, LLF= 0.66

CONTOUR LEVELS: A= 100. B= 80.0 C= 60.0 D= 40.0 E= 20.0

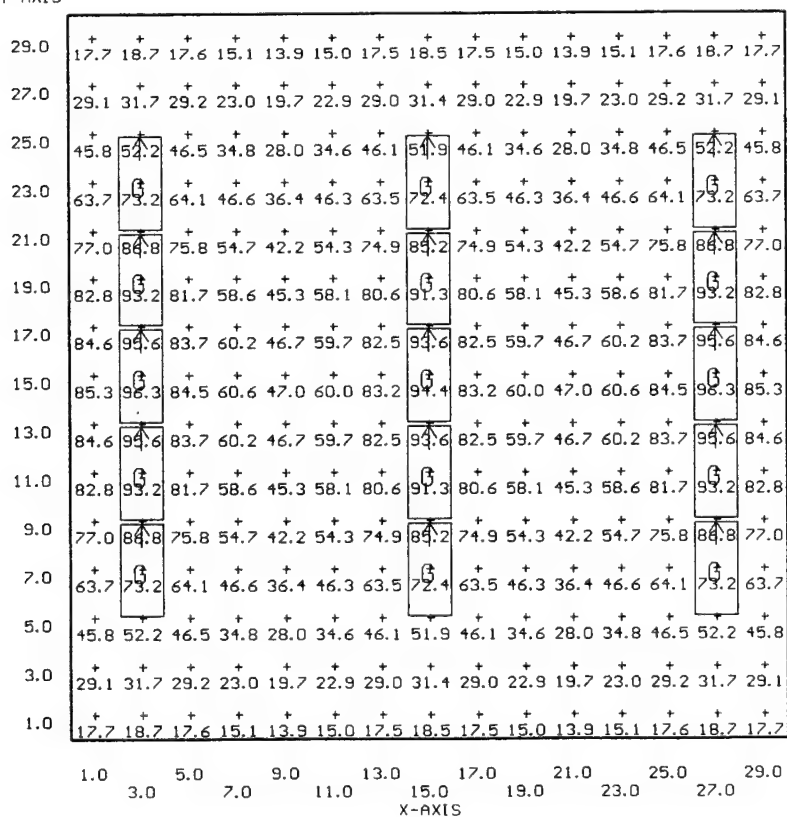


USI's LITE*PRO V2.27E Point-By-Point Numeric Output 12:00 24-Jan-95
 PROJECT: 63-210 AREA: M43 TEST GRID: Ceiling
 Values are FC, SCALE: 1 IN= 8.0FT, HORZ GRID (U), HORZ CALC, Z= 2.5
 Computed in accordance with IES recommendations

+ MIN=13.9 MAX=96.3 AVE=52.7 AVE/MIN= 3.79 MAX/MIN= 6.93

G <15> = K7965 COLUMBIA 2SG240-EXA.125NOM, (2) F40CW, LLF= 0.68

Y-AXIS

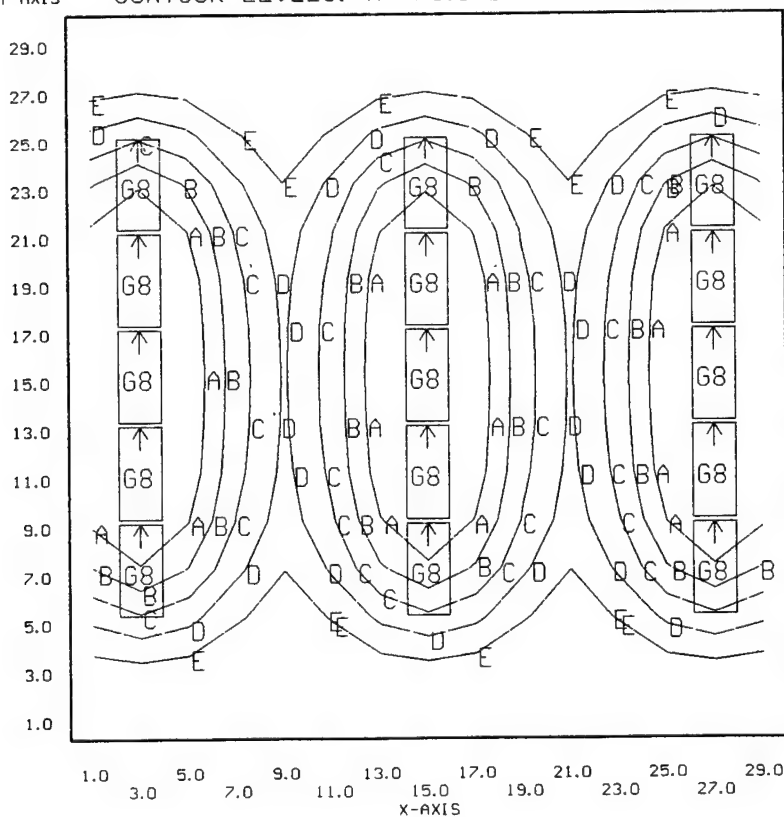


USI's LITE*PRO V2.27E Point-By-Point Numeric Output 10:13 15-Mar-95
 PROJECT: 63-210 AREA: M43 TEST-N GRID: Ceiling
 Values are FC, SCALE: 1 IN= 8.0FT, HORZ GRID (U), HORZ CALC, Z= 2.5
 Computed in accordance with IES recommendations

+ MIN=12.3 MAX=90.5 AVE=48.1 AVE/MIN= 3.92 MAX/MIN= 7.38

G8 <15> = 9868 COLUMBIA T84PS2*-84-242-2EOCT, (2) F032/31K, LLF= 0.66

Y-AXIS CONTOUR LEVELS: A= 70.0 B= 60.0 C= 50.0 D= 40.0 E= 30.0



USI's LITE*PRO U2.27E Point-By-Point Numeric Output 12:08 24-Jan-95
 PROJECT: 63-210 AREA: STORAGE ROOMS GRID: Ceiling
 Values are FC, SCALE: 1 IN= 12.0FT, HORZ GRID (U), HORZ CALC, Z= 2.5
 Computed in accordance with IES recommendations

+ MIN=2.62 MAX=31.5 AVE=15.0 AVE/MIN= 5.71 MAX/MIN= 12.03

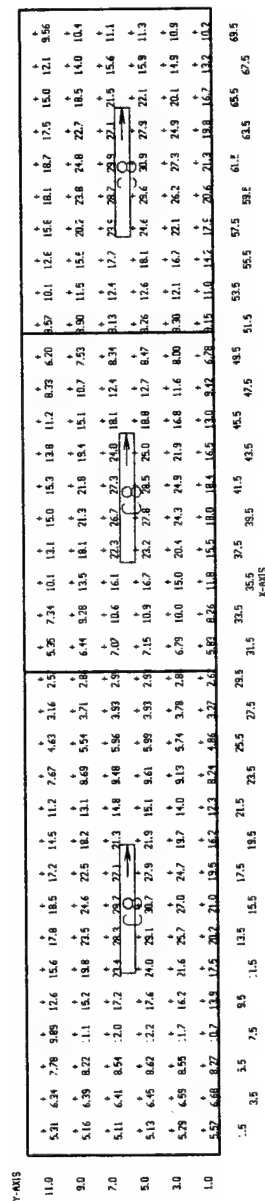
C3 <3> = K7993 COLUMBIA CSR296, <2> F96T12/CW/WM, LLF= 0.69

Y-MIN										X-MIN																									
11.0	5.41	6.45	7.53	10.1	12.5	15.5	18.2	18.8	17.6	14.8	11.4	7.81	4.72	3.22	2.4	5.45	7.48	10.3	12.3	15.3	15.6	14.1	11.4	8.49	6.31	4.73	10.3	13.1	16.1	18.4	19.1	17.8	15.2	12.3	8.74
9.0	5.75	6.51	8.38	11.3	15.5	20.2	23.9	25.0	23.0	18.5	13.4	8.86	5.65	3.78	2.9	6.56	9.46	13.8	18.4	21.7	22.2	19.7	15.3	10.9	7.67	5.07	11.7	15.8	20.6	24.3	25.2	23.1	18.9	14.3	10.6
7.0	5.20	6.53	8.70	12.2	17.5	23.0	28.5	30.3	27.6	21.7	15.0	9.46	6.07	4.01	3.0	7.20	10.8	16.4	22.7	27.2	27.8	24.4	18.5	12.6	8.50	5.30	12.6	18.0	24.3	28.2	31.5	27.6	21.9	15.9	11.3
5.0	5.22	6.59	8.78	12.4	17.5	24.4	28.7	31.3	28.4	22.3	15.4	9.79	6.11	4.00	2.9	7.29	11.1	17.0	23.6	28.4	28.1	25.4	18.2	12.9	8.63	5.43	12.9	18.4	25.1	30.2	31.5	28.5	22.5	16.2	11.5
3.0	5.35	6.71	8.71	11.9	16.9	22.0	26.2	27.5	25.2	20.1	14.3	9.30	5.84	3.66	2.8	6.92	10.2	15.7	20.8	24.7	25.3	22.3	17.1	11.8	8.14	5.47	12.3	17.0	22.5	26.7	27.8	25.4	20.4	15.2	11.1
1.0	5.62	6.80	8.42	10.3	14.1	17.8	20.6	21.4	19.8	16.5	12.5	8.79	4.95	3.33	2.6	5.94	8.41	12.0	15.8	18.4	18.8	16.8	13.3	9.59	6.90	5.31	11.2	14.5	18.2	21.0	21.7	20.2	17.0	13.4	10.4
	1.5	3.5	5.5	7.5	9.5	11.5	13.5	15.5	17.5	19.5	21.5	23.5	25.5	27.5	28.5	31.5	33.5	35.5	38.5	41.5	43.5	45.5	47.5	49.5	51.5	53.5	55.5	57.5	59.5	61.5	63.5	65.5	67.5	69.5	

US1's LITE*PRO V2.27E Point-By-Point: Numeric Output 10:15 15-Mar-95
PROJECT: 63-210 AREA: STORAGE ROOMS-N GRID: Ceiling
Values are FC, SCALE: 1 IN= 12.0FT, HORZ GRID (U), HORZ CALC, Z= 2.5
Computed in accordance with IES recommendations

+ MIN=2.57	MAX=30.9	AVE=14.7	AVE/MIN=	5.71	MAX/MIN=	12.03
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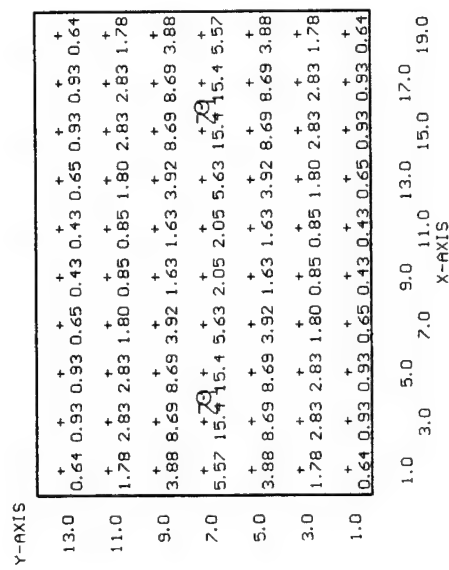
CC 8 <3> = K7993 COLUMBIA CS2296, (2) F096/735, $_{-}LF = 0.66$



USI's LITE*PRO V2.27E Point-By-Point Numeric Output 13:38 24-Jan-95
PROJECT: 63-210 AREA: DRYING ROOM GRID: Ceiling
Values are FC, SCALE: 1 IN= 8.0FT, HORZ GRID (U), HORZ CALC, Z= 2.5
Computed in accordance with IES recommendations

+ MIN=0.43	MAX=15.4	AUE=3.57	AUE/MIN=	8.16	MAX/MIN=	35.11
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Z1 <2> = B1401C PRESOLITE PBX-TB12, <1> 100A19/IF, LLF= 0.76

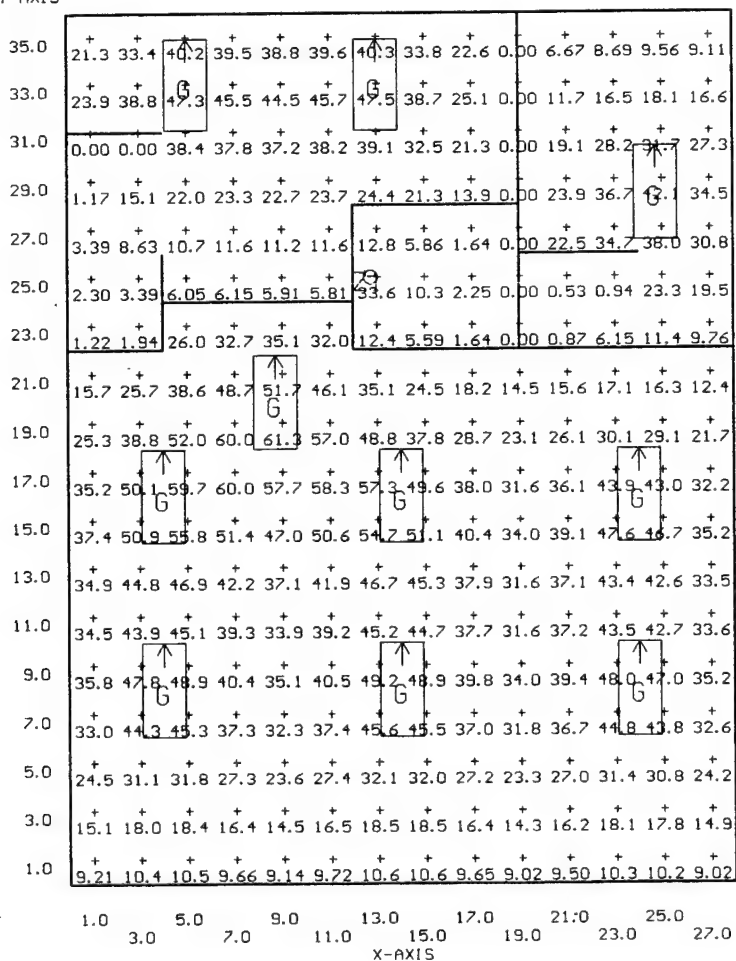


USI's LITE*PRO V2.27E Point-By-Point Numeric Output 14:10 24-Jan-95
 PROJECT: 63-210 AREA: BREAK ROOM GRID: Ceiling
 Values are FC, SCALE: 1 IN= 8.0FT, HORZ GRID (U), HORZ CALC, Z= 2.5
 Computed in accordance with IES recommendations

+ MIN=0.00 . MAX=61.3 AVE=28.4 AVE/MIN=N/A MAX/MIN=N/A

G <10> = K7965 COLUMBIA 2SG240-EXA.125NOM, (2) F40CW, LLF= 0.68
 Z1 <1> = B1401C PRESCOLITE PBX-TB12, (1) 100A19/IF, LLF= 0.76

Y-AXIS

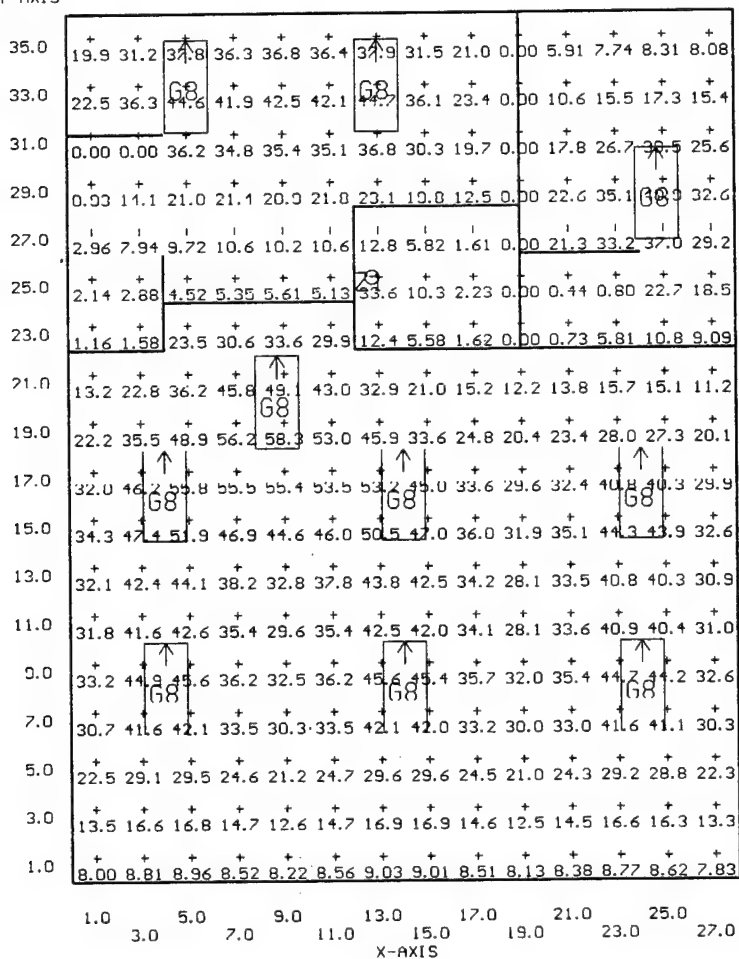


USI's LITE*PRO V2.27E Point-By-Point Numeric Output 10:24 15-Mar-95
 PROJECT: 63-210 AREA: BREAK ROOM-N GRID: Ceiling
 Values are FC, SCALE: 1 IN= 8.0FT, HORZ GRID (U), HORZ CALC, Z= 2.5
 Computed in accordance with IES recommendations

+ MIN=0.00 MAX=58.3 AVE=26.2 AVE/MIN=N/A MAX/MIN=N/A

G8 <10> = 9868 COLUMBIA T84PS2*-84-242-2EOCT, (2) F032/31K, LLF= 0.66
 Z1 <1> = B1401C PRESCOLITE PBX-TB12, (1) 100A19/IF, LLF= 0.76

Y-AXIS



USI's LITE*PRO V2.27E Point-By-Point Numeric Output 14:20 24-Jan-95
 PROJECT: 63-210 AREA: OFFICE/TOOL RM GRID: Ceiling
 Values are FC, SCALE: 1 IN= 8.0FT, HORZ GRID (U), HORZ CALC, Z= 2.5
 Computed in accordance with IES recommendations

+ MIN=9.38 MAX=67.6 AVE=34.8 AVE/MIN= 3.72 MAX/MIN= 7.21

G <7> = K7965 COLUMBIA 2SG240-EXA.125NOM, <2> F40CW, LLF= 0.68

Y-AXIS

19.0	19.1	30.6	40.5	38.7	26.6	15.3	9.48	15.4	19.9	23.2	22.1	18.4	13.8	9.38
17.0	21.4	36.5	50.8	49.5	34.3	19.1	16.1	26.4	36.1	42.7	41.2	33.0	23.2	13.6
15.0	23.2	40.3	55.3	54.7	38.9	21.6	22.6	37.8	43.9	52.8	61.3	48.6	32.5	17.9
13.0	22.8	40.0	55.1	54.8	39.1	22.0	25.1	41.0	48.4	57.6	66.2	52.6	34.8	19.1
11.0	20.5	35.8	50.4	50.1	35.3	20.3	23.8	35.6	47.1	55.0	53.4	42.7	29.3	16.7
9.0	18.4	29.9	40.0	39.9	29.5	18.2	26.7	33.0	37.2	42.4	41.6	34.0	23.4	13.9
7.0	19.2	29.5	35.1	34.8	33.4	36.3	39.5	39.7	39.9	42.7	42.9	35.7	23.5	13.6
5.0	24.3	38.0	46.8	44.9	42.1	46.6	50.9	47.7	44.5	47.8	49.8	40.3	25.3	14.3
3.0	24.6	38.3	47.1	45.2	42.3	46.5	50.6	46.9	43.2	46.2	48.0	38.8	24.4	13.8
1.0	20.4	30.0	35.4	35.0	33.8	36.0	38.1	36.1	34.1	35.4	35.5	29.5	19.6	11.2

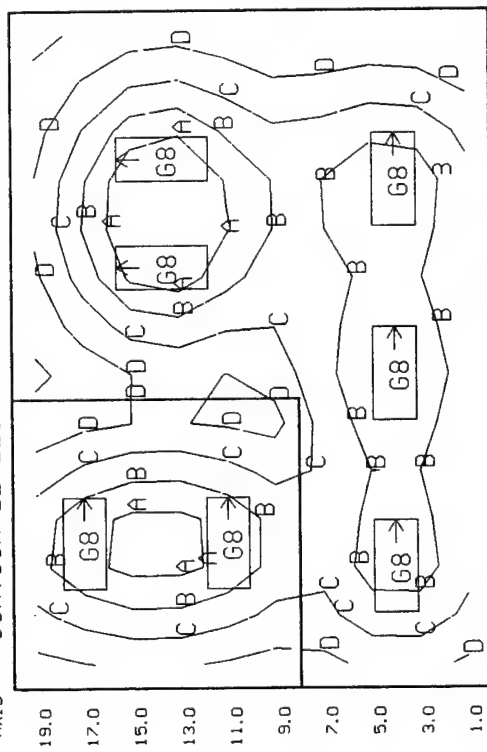
1.0 3.0 5.0 7.0 9.0 11.0 13.0 15.0 17.0 19.0 21.0 23.0 25.0 27.0
 X-AXIS

USI's LITE*PRO V2.27E Point-By-Point Numeric Output 10:27 15-Mar-95
 PROJECT: 63-210 AREA: OFF/TOOL RM-N GRID: Ceiling
 Values are FC, SCALE: 1 IN= 8.0FT, HORZ GRID (U), HORZ CA-C, Z= 2.5
 Computed in accordance with IES recommendations

+ MIN=7.82 MAX=63.7 AVE=32.3 AVE/MIN= 4.13 MAX/MIN= 8.14

G8 <7> = 9868 COLUMBIA T84PS2*-84-242-2E0CT, <2> F032/31K, LLF= 0.66

CONTOUR LEVELS: A= 50.0 B= 40.0 C= 30.0 D= 20.0 E= 10.0



1.0 3.0 5.0 7.0 9.0 11.0 13.0 15.0 17.0 19.0 21.0 23.0 25.0 27.0
 X-AXIS

Bldg 63-410 Summary

Present System

Fixture Type	Watts/ Fixture	Number Fixtures	Total Watts
J1	48	31	1,488
R	49	88	4,312
R1	42	21	882
R2	52	8	416
T4	22	14	308
T6	40	6	240
Totals		168	7,646

Replacement System

Fixture Type	Watts/ Fixture	Number Fixtures	Total Watts
I8	34	73	2,482
J8	34	31	1,054
R8	34	10	340
T4	22	14	308
W2	59	20	1,180
W8	34	15	510
Totals		163	5,874

63-410 Schedule

Reynolds, Smith & Hills, Inc.
4651 Salisbury Road
Jacksonville, FL 32256
Buildings Engineering

Luminaire Fixture Schedule
Generated by LitePro V2.27E
Provided and supported by USI Lighting, Inc.
Filename: 63-410 Type: Indoor

30
72
M
4

Luminaire Fixture Schedule / PRESENT

Project name: PBA Lighting Survey - Bldg 63-410
Prepared for: Corps of Engineers
Prepared by: C. Warren

Project #6941331
Date: 30-Jan-95
UPD: 1.0W/Sq.Ft

TYPE	DESCRIPTION	LAMP/BALLAST	V/W	QTY	REMARKS
J1	7"X4' 1L WET LOCATION WRAP LENS- PRISMATIC BOTTOM & SIDES COLUMBIA LUN140-WL	F40CW ESB	000 - 48	✓ 31	
R	6"X4' 1L SURFACE CORRIDOR WRAP LENS- PRISMATIC BOTTOM & SIDES COLUMBIA RO140-A	F40CW ESB	000 - 49	✓ 88	
R1	5"X4' 1L SURFACE CORRIDOR WRAP LENS- SMOOTH WHITE ACRYLIC COLUMBIA AD140-A	F40CW/WM ESB	000 - 42	✓ 21	
R2	5"X4"X4' 1L WALL CORRIDOR WRAP LENS- SMOOTH WHITE ACRYLIC COLUMBIA W140-A	F40CW ESB	000 - 52	✓ 8	
T4	9" 2L SURFACE ROUND DOWNLIGHT LENS - OPTIONAL SPREAD LENS PRESCOLITE CFS8-472-SL8	F9TT/27K STD	000 - 22	14	
T6	5"X4"X4' 1L WALL CORRIDOR WRAP LENS- SMOOTH WHITE ACRYLIC COLUMBIA W140-A	F30T12/WW/RS ESB	000 - 40	6	

NOTES:

63-410 Schedule

Reynolds, Smith & Hills, Inc.
4651 Salisbury Road
Jacksonville, FL 32256
Buildings Engineering

Luminaire Fixture Schedule
Generated by LitePro V2.27E
Provided and supported by USI Lighting, Inc.
Filename: 63-410 Type: Indoor

Luminaire Fixture Schedule / **PROPOSED**

Project name: PBA Lighting Survey - Bldg 63-410
Prepared for: Corps of Engineers
Prepared by: C. Warren

Project #6941331
Date: 15-Mar-95
UPD: 0.8W/Sq.Ft

TYPE	DESCRIPTION	LAMP/BALLAST	V/W	QTY	REMARKS
I8	3"X4' 1L SM HSG SURFACE STRIP OPEN BOTTOM- NO SHIELDING COLUMBIA CH140	FO32/35K EOCT	000 - 34	39	
T8	8"X4' 1L DAMP LOCATION WRAP LENS- PRISMATIC BOTTOM & SIDES COLUMBIA LUN140-DMR	FO32/35K EOCT	000 - 34	25	
R8	6"X4' 1L SURFACE SPEC.HSG. WRAP LENS- PRISMATIC BOTTOM & SIDES COLUMBIA RO140-A-SPREF	FO32/35K EOCT	000 - 34	10	
T4	9" 2L SURFACE ROUND DOWNLIGHT LENS - OPTIONAL SPREAD LENS PRESCOLITE CFS8-472-SL8	F9TT/27K STD	000 - 22	10	
W2	8"X4' 2L CEILING MT.WRAPAROUND LENS- PRISMATIC BOTTOM & SIDES COLUMBIA AW240-A	FO32/35K EOCT	000 - 59	20	
W8	5"X4"X4' 1L WALL CORRIDOR WRAP LENS- SMOOTH WHITE ACRYLIC COLUMBIA W140-A	FO32/35K EOCT	000 - 34	12	

NOTES:

63-410A Schedule

Reynolds, Smith & Hills, Inc.
4651 Salisbury Road
Jacksonville, FL 32256
Buildings Engineering

Luminaire Fixture Schedule
Generated by LitePro V2.27E
Provided and supported by USI Lighting, Inc.
Filename: 63-410A Type: Indoor

Luminaire Fixture Schedule / **PROPOSED**

Project name: PBA Lighting Survey - Bldg 63-410
Prepared for: Corps of Engineers
Prepared by: C. Warren

Project #6941331
Date: 15-Mar-95
UPD: 0.8W/Sq.Ft

TYPE	DESCRIPTION	LAMP/BALLAST	V/W	QTY	REMARKS
I8	3"X4' 1L SM HSG SURFACE STRIP OPEN BOTTOM- NO SHIELDING COLUMBIA CH140	FO32/35K EOCT	000 - 34	34	
T8	8"X4' 1L DAMP LOCATION WRAP LENS- PRISMATIC BOTTOM & SIDES COLUMBIA LUN140-DMR	FO32/35K EOCT	000 - 34	6	
T4	9" 2L SURFACE ROUND DOWNLIGHT LENS - OPTIONAL SPREAD LENS PRESCOLITE CFS8-472-SL8	F9TT/27K STD	000 - 22	4	
W8	5"X4"X4' 1L WALL CORRIDOR WRAP LENS- SMOOTH WHITE ACRYLIC COLUMBIA W140-A	FO32/35K EOCT	000 - 59	3	

NOTES:

Reynolds, Smith & Hills, Inc.
 4651 Salisbury Road
 Jacksonville, FL 32256
 Buildings Engineering

Project Area Summary
 Generated by LitePro V2.27E
 Provided and supported by USI Lighting, Inc.
 Filename: 63-410 Type: Indoor

Project Area Summary

Project name: PBA Lighting Survey - Bldg 63-410
 Prepared for: Corps of Engineers
 Prepared by: C. Warren

Project #6941331
 Date: 15-Mar-95
 UPD: 0.9W/Sq.Ft

AREA NAME	DIMENSIONS	LUMINAIRES	W/SQ.FT	QTY
ENTRANCE	12x12x9Ft	(2) Type R1	0.6	1
ENTRANCE-N	12x12x9Ft	(2) Type I8	0.5	1
ALCOVE	4x6x9Ft	(1) Type R1	1.8	1
ALCOVE-N	4x6x9Ft	(1) Type I8	1.4	1
LOCKER ROOM 1	32x19x9Ft	(10) Type R (3) Type R2	1.1	1
LOCKER ROOM 1-N	32x19x9Ft	(10) Type I8 (3) Type W8	0.7	1
SHOWERS 1	32x19x9Ft	(10) Type J1	0.8	1
SHOWERS 1-N	32x19x9Ft	(10) Type J8	0.6	1
LOCKER 2	16x26x9Ft	(7) Type R (1) Type R2	0.9	1
LOCKER 2-N	16x26x9Ft	(7) Type I8 (1) Type W8	0.7	1
SHOWERS 2	16x20x9Ft	(6) Type J1	0.9	1
SHOWERS 2-N	16x20x9Ft	(6) Type J8	0.6	1
LOCKER ROOM 2	7x23x8Ft	(3) Type R (1) Type T4	1.1	1
LOCKER ROOM 2-N	7x23x8Ft	(3) Type I8 (1) Type T4	0.8	1
RESTROOM 1	5x16x8Ft	(2) Type R (1) Type R2	1.9	1

RESTROOM 1-N	5x16x8Ft	(1) Type I8 (1) Type W8	0.9	1
ALCOVE 4	6x4x9Ft	(1) Type T4	1.0	1
ALCOVES 5 & 6	11x4x9Ft	(2) Type T4	1.0	1
OPEN AREA/RR 2	10x27x8Ft	(2) Type R (2) Type R1 (1) Type R2	0.9	1
OPN AREA/RR 2-N	10x27x8Ft	(4) Type R8 (1) Type W8	0.6	1
ALCOVE 7	7x4x8Ft	(1) Type R	1.8	1
ALCOVE 7-N	7x4x8Ft	(1) Type I8	1.2	1
HALLWAY 1	22x6x9Ft	(2) Type R	0.7	1
HALLWAY 1-N	22x6x9Ft	(2) Type R8	0.5	1
OFFICE 1/KTCHN	21x9x9Ft	(6) Type R (1) Type T6	1.8	1
OFFICE 1/KTCHN-N	21x9x9Ft	(6) Type W2 (1) Type W8	2.1	1
BREAK ROOM	30x21x9Ft	(12) Type R	0.9	1
BREAK ROOM-N	30x21x9Ft	(8) Type W2	0.7	1
OFFICES 3 & 4	19x12x9Ft	(6) Type R1	1.1	1
OFFICES 3 & 4-N	19x12x9Ft	(6) Type W2	1.6	1
MENS TOILET	10x12x8Ft	(2) Type R (1) Type T4 (1) Type T6	1.3	1
MENS TOILET-N	10x12x8Ft	(2) Type I8 (1) Type T4 (1) Type W8	1.0	1
HALL/JAN/RR ENT	24x10x9Ft	(3) Type R (2) Type T4	0.8	1
HALL/JAN/RR-N	24x10x9Ft	(3) Type R8 (2) Type T4	0.6	1
WOMENS TOILET	10x9x9Ft	(2) Type R1 (1) Type T6	1.4	1
WOMENS TOILET-N	10x9x9Ft	(2) Type I8 (1) Type W8	1.1	1
ENTRANCE 2	8x9x9Ft	(1) Type R1	0.6	1

63-410 Areas

ENTRANCE 2-N	8x9x9Ft	(1) Type R8	0.5	1
WOMENS ALCOVE	4x5x8Ft	(1) Type T4	1.1	1
MENS ALCOVE	4x5x9Ft	(1) Type T4	1.1	1
MENS CHANGE	32x20x9Ft	(10) Type R (3) Type T6	1.0	1
MENS CHANGE-N	32x20x9Ft	(10) Type I8 (3) Type W8	0.7	1
MENS SHOWER	32x20x9Ft	(9) Type J1 (1) Type T4	0.7	1
MENS SHOWER-N	32x20x9Ft	(9) Type J8 (1) Type T4	0.5	1

NOTES:

Reynolds, Smith & Hills, Inc.
 4651 Salisbury Road
 Jacksonville, FL 32256
 Buildings Engineering

Project Area Summary
 Generated by LitePro V2.27E
 Provided and supported by USI Lighting, Inc.
 Filename: 63-410A Type: Indoor

Project Area Summary

Project name: PBA Lighting Survey - Bldg 63-410
 Prepared for: Corps of Engineers
 Prepared by: C. Warren

Project #6941331
 Date: 15-Mar-95
 UPD: 0.9W/Sq.Ft

AREA NAME	DIMENSIONS	LUMINAIRES	W/SQ.FT	QTY
ALCOVE 10	4x12x8Ft	(2) Type T4	0.9	1
OPEN AREA 2	10x10x8Ft	(2) Type R	1.0	1
OPEN AREA 2-N	10x10x8Ft	(2) Type I8	0.7	1
RESTROOM 5	16x5x8Ft	(2) Type R (1) Type R1	1.8	1
RESTROOM 5-N	16x5x8Ft	(2) Type I8 (1) Type W8	1.6	1
WOMENS LOCKERS	20x20x9Ft	(6) Type R (1) Type R2	0.9	1
WOMENS LOCKRS-N	20x20x9Ft	(6) Type I8 (1) Type W8	0.7	1
WOMENS SHOWERS	20x20x8Ft	(6) Type J1	0.7	1
WOMENS SHWERS-N	20x20x8Ft	(6) Type J8	0.5	1
WOMENS TOILET	16x10x8Ft	(3) Type R (1) Type R2	1.2	1
WOMENS TOILET-N	16x10x8Ft	(3) Type I8 (1) Type W8	1.0	1
TOILET ALCOVE	10x6x8Ft	(1) Type R	0.8	1
TOILET ALCOVE-N	10x6x8Ft	(1) Type I8	0.6	1
ENTRANCE ALCOVE	4x6x8Ft	(1) Type T4	0.9	1
ICE MACHINE	10x10x9Ft	(2) Type R (1) Type T4	1.2	1

10x10x9Ft

(2) Type I8
(1) Type T4

0.9

1

CLOTHING ISSUE

18x10x9Ft

(6) Type R1

1.4

1

CLOTHING ISSUE-N

18x10x9Ft

(6) Type I8

1.1

1

MASK STORAGE

19x26x12Ft

(12) Type R

1.2

1

MASK STORAGE-N

19x26x12Ft

(12) Type I8

0.8

1

NOTES:

Reynolds, Smith & Hills, Inc.
4651 Salisbury Road
Jacksonville, FL 32256
Buildings Engineering

Project Calculation Summary
Generated by LitePro V2.27E
Provided and supported by USI Lighting, Inc.
Filename: 63-410 Type: Indoor

Project Calculation Summary

Project name: PBA Lighting Survey - Bldg 63-410
Prepared for: Corps of Engineers
Prepared by: C. Warren

Project #6941331
Date: 15-Mar-95
UPD: 0.9W/Sq.Ft

AREA NAME	DIMENSIONS	GRID NAME	AVE	MAX	MIN
ENTRANCE	12x12x9Ft	Ceiling	<+> 4.8	8.9	2.2
ENTRANCE-N	12x12x9Ft	Ceiling	<+> 10.8	14.6	7.5
ALCOVE	4x6x9Ft	Ceiling	<+> 6.6	7.5	6.2
ALCOVE-N	4x6x9Ft	Ceiling	<+> 12.6	13.5	12.1
LOCKER ROOM 1	32x19x9Ft	Ceiling	<+> 23.2	35.5	12.3
LOCKER ROOM 1-N	32x19x9Ft	Ceiling	<+> 22.3	33.9	13.3
SHOWERS 1	32x19x9Ft	Ceiling	<+> 14.4	17.7	7.5
SHOWERS 1-N	32x19x9Ft	Ceiling	<+> 13.1	16.1	6.9
LOCKER 2	16x26x9Ft	Ceiling	<+> 15.7	23.3	0.0
LOCKER 2-N	16x26x9Ft	Ceiling	<+> 15.0	21.4	0.0
SHOWERS 2	16x20x9Ft	Ceiling	<+> 15.1	18.0	11.3
SHOWERS 2-N	16x20x9Ft	Ceiling	<+> 13.8	16.4	10.3
LOCKER ROOM 2	7x23x8Ft	Ceiling	<+> 16.8	25.7	5.1
LOCKER ROOM 2-N	7x23x8Ft	Ceiling	<+> 15.4	21.8	5.2
RESTROOM 1	5x16x8Ft	Ceiling	<+> 23.1	33.2	13.7
RESTROOM 1-N	5x16x8Ft	Ceiling	<+> 14.0	21.3	6.9
ALCOVE 4	6x4x9Ft	Ceiling	<+> 6.7	7.1	6.3
ALCOVES 5 & 6	11x4x9Ft	Ceiling	<+> 8.3	9.7	7.0

OPEN AREA/RR 2

OPEN AREA/RR 2	10x27x8Ft	Ceiling	<+>	8.7	30.0	0.0
OPN AREA/RR 2-N	10x27x8Ft	Ceiling	<+>	11.8	28.1	0.0
ALCOVE 7	7x4x8Ft	Ceiling	<+>	16.0	18.0	13.9
ALCOVE 7-N	7x4x8Ft	Ceiling	<+>	14.0	15.8	12.2
HALLWAY 1	22x6x9Ft	Ceiling	<+>	10.1	12.7	5.3
HALLWAY 1-N	22x6x9Ft	Ceiling	<+>	9.4	11.5	5.0
OFFICE 1/KTCHN	21x9x9Ft	Ceiling	<+>	21.6	30.0	9.8
OFFICE 1/KTCHN-N	21x9x9Ft	Ceiling	<+>	38.3	51.1	17.3
BREAK ROOM	30x21x9Ft	Ceiling	<+>	20.0	21.8	16.4
BREAK ROOM-N	30x21x9Ft	Ceiling	<+>	25.6	33.2	14.4
OFFICES 3 & 4	19x12x9Ft	Ceiling	<+>	7.7	9.5	5.6
OFFICES 3 & 4-N	19x12x9Ft	Ceiling	<+>	33.1	42.1	22.8
MENS TOILET	10x12x8Ft	Ceiling	<+>	18.1	26.0	9.8
MENS TOILET-N	10x12x8Ft	Ceiling	<+>	16.7	22.2	10.4
HALL/JAN/RR ENT	24x10x9Ft	Ceiling	<+>	9.7	16.5	0.0
HALL/JAN/RR-N	24x10x9Ft	Ceiling	<+>	9.1	14.9	0.0
WOMENS TOILET	10x9x9Ft	Ceiling	<+>	9.8	13.3	5.9
WOMENS TOILET-N	10x9x9Ft	Ceiling	<+>	18.1	21.9	13.4
ENTRANCE 2	8x9x9Ft	Ceiling	<+>	4.3	5.8	3.0
ENTRANCE 2-N	8x9x9Ft	Ceiling	<+>	9.2	10.2	7.9
WOMENS ALCOVE	4x5x8Ft	Ceiling	<+>	8.6	9.4	8.0
MENS ALCOVE	4x5x9Ft	Ceiling	<+>	6.9	7.3	6.6
MENS CHANGE	32x20x9Ft	Ceiling	<+>	19.1	23.3	10.4
MENS CHANGE-N	32x20x9Ft	Ceiling	<+>	19.2	26.2	12.0
MENS SHOWER	32x20x9Ft	Ceiling	<+>	12.4	16.9	5.1
MENS SHOWER-N	32x20x9Ft	Ceiling	<+>	11.3	15.5	4.6

63-410A Calculations

Reynolds, Smith & Hills, Inc.
 4651 Salisbury Road
 Jacksonville, FL 32256
 Buildings Engineering

Project Calculation Summary
 Generated by LitePro V2.27E
 Provided and supported by USI Lighting, Inc.
 Filename: 63-410A Type: Indoor

Project Calculation Summary

Project name: PBA Lighting Survey - Bldg 63-410
 Prepared for: Corps of Engineers
 Prepared by: C. Warren

Project #6941331
 Date: 15-Mar-95
 UPD: 0.9W/Sq.Ft

AREA NAME	DIMENSIONS	GRID NAME	AVE	MAX	MIN
ALCOVE 10	4x12x8Ft	Ceiling	<+> 9.1	10.6	7.3
OPEN AREA 2	10x10x8Ft	Ceiling	<+> 17.2	24.3	11.2
OPEN AREA 2-N	10x10x8Ft	Ceiling	<+> 15.4	20.2	11.7
RESTROOM 5	16x5x8Ft	Ceiling	<+> 19.5	24.2	14.2
RESTROOM 5-N	16x5x8Ft	Ceiling	<+> 17.2	19.4	13.7
WOMENS LOCKERS	20x20x9Ft	Ceiling	<+> 17.6	26.5	10.1
WOMENS LOCKRS-N	20x20x9Ft	Ceiling	<+> 16.8	25.0	11.2
WOMENS SHOWERS	20x20x8Ft	Ceiling	<+> 13.2	18.4	6.2
WOMENS SHWERS-N	20x20x8Ft	Ceiling	<+> 11.8	16.4	5.5
WOMENS TOILET	16x10x8Ft	Ceiling	<+> 18.8	33.0	3.0
WOMENS TOILET-N	16x10x8Ft	Ceiling	<+> 16.9	30.5	2.9
TOILET ALCOVE	10x6x8Ft	Ceiling	<+> 11.8	16.0	8.6
TOILET ALCOVE-N	10x6x8Ft	Ceiling	<+> 10.2	13.8	7.7
ENTRANCE ALCOVE	4x6x8Ft	Ceiling	<+> 8.2	9.1	7.7
ICE MACHINE	10x10x9Ft	Ceiling	<+> 17.7	23.2	11.8
ICE MACHINE-N	10x10x9Ft	Ceiling	<+> 15.9	20.6	11.2
CLOTHING ISSUE	18x10x9Ft	Ceiling	<+> 11.5	15.6	8.1
CLOTHNG ISSUE-N	18x10x9Ft	Ceiling	<+> 26.7	31.3	22.2

63-410A Calculations

SK STORAGE	19x26x12Ft	Ceiling	<+>	21.8	27.9	15.1
MASK STORAGE-N	19x26x12Ft	Ceiling	<+>	20.6	24.1	15.7

NOTES:

USI's LITE*PRO V2.27E Point-By-Point Numeric Output 14:59 26-Jan-95
 PROJECT: 63-410 AREA: ENTRANCE GRID: Ceiling
 Values are FC, SCALE: 1 IN= 4.0FT, HORZ GRID (U), HORZ CALC, Z= 2.5
 Computed in accordance with IES recommendations

+ MIN=2.18 MAX=8.86 AVE=4.83 AVE/MIN= 2.21 MAX/MIN= 4.05

R1 <2> = K8956 COLUMBIA AD140-A, (1) F40CW-WM, LLF= 0.68

Y-AXIS

11.0	+	2.26	+	4.06	+	5.93	+	5.87	+	3.94	+	2.18
9.0	+	2.33	+	4.72	+	7.17	+	7.09	+	4.58	+	2.24
7.0	+	2.63	+	5.62	+	8.68	+	8.58	+	5.44	+	2.52
5.0	+	2.69	+	5.75	+	8.86	+	8.76	+	5.56	+	2.57
3.0	+	2.30	+	4.76	+	7.30	+	7.22	+	4.61	+	2.21
1.0	+	2.31	+	4.26	+	6.31	+	6.25	+	4.14	+	2.23

1.0 5.0 9.0
 3.0 7.0 11.0
 X-AXIS

USI's LITE*PRO U2.27E Point-By-Point Numeric Output 11:40 15-Mar-95
 PROJECT: 63-410 AREA: ENTRANCE-N GRID: Ceiling
 Values are FC, SCALE: 1 IN= 4.0FT, HORZ GRID (U), HCRZ CALC, Z= 2.5
 Computed in accordance with IES recommendations

+ MIN=7.50 MAX=14.6 AVE=10.8 AVE/MIN= 1.45 MAX/MIN= 1.94

I8 <2> = K8959 COLUMBIA CH140, <1> F032/35K, LLF= 0.72

Y-AXIS

11.0	+	7.63	+	9.73	+	11.6	+	11.6	+	9.60	+	7.50
9.0	+	8.39	+	11.2	+	13.9	+	13.9	+	11.0	+	8.24
7.0	+	8.87	+	12.0	+	14.5	+	14.4	+	11.8	+	8.71
5.0	+	8.92	+	12.1	+	14.6	+	14.5	+	11.9	+	8.75
3.0	+	8.51	+	11.4	+	13.8	+	13.7	+	11.3	+	8.35
1.0	+	7.77	+	9.99	+	12.0	+	11.9	+	9.86	+	7.64

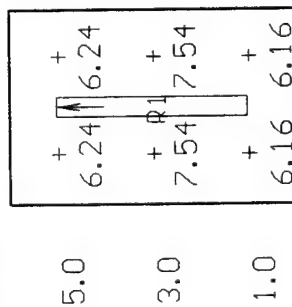
1.0 3.0 5.0 7.0 9.0 11.0
 X-AXIS

USI's LITE*PRO V2.27E Point-By-Point Numeric Output 15:09 26-Jan-95
 PROJECT: 63-410 AREA: ALCOVE GRID: Ceiling
 Values are FC, SCALE: 1 IN= 4.0FT, HORZ GRID (U), HORZ CALC, Z= 2.5
 Computed in accordance with IES recommendations

+ MIN=6.16 MAX=7.54 AVE=6.65 AVE/MIN= 1.08 MAX/MIN= 1.22

R1 <1> = K8956 COLUMBIA AD140-A, <1> F40CW/WM, LLF= 0.68

Y-AXIS



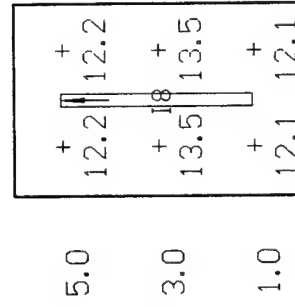
1.0 3.0
 X-AXIS

USI's LITE*PRO V2.27E Point-By-Point Numeric Output 11:41 15-Mar-95
 PROJECT: 63-410 AREA: ALCOVE-N GRID: Ceiling
 Values are FC, SCALE: 1 IN= 4.0FT, HORZ GRID (U), HCRZ CALC, Z= 2.5
 Computed in accordance with IES recommendations

+ MIN=12.1 MAX=13.5 AVE=12.6 AVE/MIN= 1.04 MAX/MIN= 1.12

I8 <1> = K8959 COLUMBIA CH140, <1> F032/35K, LLF= 0.72

Y-AXIS



1.0 3.0
 X-AXIS

USI's LITE*PRO V2.27E Point-By-Point Numeric Output 16:15 26-Jan-95
 PROJECT: 63-410 AREA: LOCKER ROOM 1 GRID: Ceiling
 Values are FC, SCALE: 1 IN= 8.0FT, HORZ GRID (U), HORZ CALC, Z= 2.5
 Computed in accordance with IES recommendations

+ MIN=12.3 MAX=35.5 AVE=23.2 AVE/MIN= 1.88 MAX/MIN= 2.88

R <10> = K8948A COLUMBIA R0140-A, <1> F40CW, LLF= 0.68
 R2 <3> = K8958 COLUMBIA W140-A, <1> F40CW, LLF= 0.60

Y-AXIS

17.5	21.0	23.8	24.7	24.1	23.2	22.1	21.2	20.7	20.3	19.8	19.4	18.8	18.1	17.0	15.0	12.3
15.5	15.7	28.5	28.6	28.0	26.6	25.2	23.9	23.1	22.8	22.1	22.0	21.5	20.4	19.2	16.8	13.5
13.5	12.7	33.5	32.8	30.2	28.1	26.4	24.8	24.2	23.6	22.9	22.7	22.1	21.0	19.8	17.4	13.8
11.5	11.3	35.2	33.9	30.8	28.0	26.0	24.5	23.7	23.0	22.4	22.0	21.4	20.5	19.2	16.8	13.6
9.5	9.2	35.4	33.8	30.4	27.4	25.3	23.8	22.8	22.1	21.5	21.1	20.4	19.6	18.3	16.1	13.2
7.5	7.1	35.5	34.1	30.9	28.1	26.1	24.5	23.7	23.0	22.4	22.0	21.4	20.5	19.2	16.8	13.6
5.5	5.9	34.1	32.3	30.5	28.3	26.5	24.9	24.3	23.5	22.9	22.7	22.1	21.0	19.8	17.5	13.9
3.5	3.7	30.2	30.2	28.4	26.8	25.3	24.0	23.5	22.9	22.1	22.0	21.4	20.4	19.2	17.0	13.5
1.5	2.1	24.5	25.2	24.5	23.4	22.3	21.3	20.8	20.3	19.8	19.4	18.8	18.0	16.9	15.0	12.4

1.0 3.0 5.0 7.0 9.0 11.0 13.0 15.0 17.0 19.0 21.0 23.0 25.0 27.0 29.0 31.0
 X-AXIS

USI's LITE*PRO V2.27E Point-By-Point Numeric Output 11:43 15-Mar-95
 PROJECT: 63-410 AREA: LOCKER ROOM 1-N GRID: Ceiling
 Values are FC, SCALE: 1 IN= 8.0FT, HORZ GRID (U), HORZ CALC, Z= 2.5
 Computed in accordance with IES recommendations

+ MIN=13.3 MAX=33.9 AVE=22.3 AVE/MIN= 1.67 MAX/MIN= 2.55

I8 <10> = K8959 COLUMBIA CH140, (1) F032/35K, LLF= 0.72
 W8 <3> = K8958 COLUMBIA W140-A, (1) F032/35K, LLF= 0.60

Y-AXIS

17.5	21.2	23.4	23.9	23.2	22.4	21.6	20.9	20.5	20.1	19.6	19.1	18.4	17.7	16.3	15.4	13.3
15.5	15.0	22.9	22.6	26.0	24.7	23.5	22.5	22.0	20.9	20.6	19.9	19.1	18.1	16.5	15.5	13.9
13.5	12.8	31.5	30.5	28.0	26.1	24.6	23.3	22.7	22.1	21.5	21.2	20.6	19.7	18.7	16.8	14.2
11.5	10.3	33.4	31.9	28.9	26.5	24.7	23.4	22.7	22.1	21.5	21.0	20.4	19.6	18.4	16.6	14.2
9.5	8.8	33.9	32.3	29.1	26.4	24.6	23.2	22.5	21.8	21.2	20.8	20.1	19.3	18.2	16.3	14.1
7.5	6.6	33.7	32.1	29.1	26.5	24.7	23.4	22.7	22.1	21.5	21.0	20.4	19.5	18.4	16.6	14.2
5.5	4.8	32.1	31.0	28.3	26.7	24.6	23.3	22.7	22.2	21.5	21.2	20.5	19.7	18.7	16.9	14.2
3.5	2.6	28.6	28.1	26.4	24.9	23.6	22.5	22.0	21.5	20.9	20.5	19.9	19.1	18.1	16.5	13.9
1.5	21.6	24.0	24.3	23.6	22.7	21.7	20.9	20.5	20.1	19.6	19.1	18.4	17.7	16.3	15.4	13.3

1.0 3.0 5.0 7.0 9.0 11.0 13.0 15.0 17.0 19.0 21.0 23.0 25.0 27.0 29.0 31.0
 X-AXIS

USI's LITE*PRO V2.27E Point-By-Point Numeric Output 16:12 26-Jan-95
 PROJECT: 63-410 AREA: SHOWERS 1 GRID: Ceiling
 Values are FC, SCALE: 1 IN= 8.0FT, HORZ GRID (U), HORZ CALC, Z= 2.5
 Computed in accordance with IES recommendations

+ MIN=7.53 MAX=17.7 AVE=14.4 AVE/MIN= 1.91 MAX/MIN= 2.35

J1 <10> = K9798X COLUMBIA LUN140-WL, (1) F40CW, LLF= 0.68

Y-AXIS

17.5	10.5	12.5	13.7	14.4	14.9	15.2	15.3	15.5	15.4	15.2	15.0	14.5	13.9	13.2	11.9	10.0
15.5	11.4	14.3	16.3	17.1	17.1	17.1	17.1	17.1	16.9	16.9	16.9	16.9	15.8	15.1	13.5	10.9
13.5	11.6	14.3	16.0	16.7	17.4	17.6	17.5	17.7	17.7	17.2	17.3	16.9	16.1	15.4	13.7	10.9
11.5	11.2	13.4	14.9	15.7	16.3	16.6	16.6	16.4	16.0	15.8	15.6	15.2	14.2	12.7	10.5	
9.5	10.8	12.7	14.2	15.0	15.6	15.8	15.8	15.6	15.1	14.5	13.4	14.2	13.2	11.3	9.99	
7.5	11.2	13.4	14.9	15.7	16.3	16.6	16.6	16.5	16.3	15.7	14.9	13.5	11.5	11.1	11.3	10.5
5.5	11.6	14.3	16.3	17.1	17.1	17.1	17.1	17.1	16.5	15.7	14.9	11.1	10.8	10.2	11.3	
3.5	11.5	14.1	15.7	16.3	17.0	17.2	17.1	17.2	16.9	16.0	14.9	13.0	9.83	9.92	11.2	10.7
1.5	10.6	12.5	13.8	14.4	14.9	15.2	15.2	15.3	15.0	14.3	12.7	10.2	7.97	7.53	8.36	8.43

1.0 3.0 5.0 7.0 9.0 11.0 13.0 15.0 17.0 19.0 21.0 23.0 25.0 27.0 29.0 31.0
 X-AXIS

USI's LITE*PRO V2.27E Point-By-Point Numeric Output 11:39 15-Mar-95
 PROJECT: 63-410 AREA: SHOWERS 1-N GRID: Ceiling
 Values are FC, SCALE: 1 IN= 8.0FT, HORZ GRID (U), HORZ CALC, Z= 2.5
 Computed in accordance with IES recommendations

+ MIN=6.87 MAX=16.1 AVE=13.1 AVE/MIN= 1.91 MAX/MIN= 2.35

J8 <10> = K9798 COLUMBIA LUN140-DMR, (1) FC32/35K, LLF= 3.67

Y-AXIS

17.5	9.61	11.4	12.5	13.1	13.6	13.9	14.0	14.1	14.0	13.9	13.7	13.3	12.7	12.1	10.9	9.14
15.5	10.1	12.9	14.2	14.9	15.5	15.9	15.9	15.5	15.5	15.5	15.5	15.5	14.4	13.7	12.9	9.93
13.5	10.6	13.1	14.5	15.2	15.8	16.1	16.0	16.1	15.7	15.8	15.4	14.7	14.0	12.5	9.95	
11.5	10.2	12.2	13.5	14.4	14.9	15.1	15.1	15.1	15.0	14.6	14.4	14.2	13.8	13.0	11.6	9.54
9.5	9.86	11.6	12.9	13.7	14.2	14.4	14.4	14.4	14.2	13.8	13.2	12.2	12.9	12.1	10.3	9.11
7.5	10.2	12.2	13.5	14.4	14.9	15.1	15.1	15.1	14.8	14.3	13.6	12.3	10.5	10.1	10.3	9.60
5.5	10.6	13.1	14.5	15.2	15.9	16.1	15.9	15.9	15.0	14.3	13.6	12.3	10.5	10.1	10.3	9.60
3.5	10.4	12.9	14.3	14.9	15.5	15.7	15.6	15.7	15.4	14.6	13.6	11.9	8.96	9.05	10.2	9.73
1.5	9.65	11.4	12.5	13.2	13.6	13.9	13.9	13.9	13.7	13.0	11.6	9.31	7.27	6.87	7.62	7.68

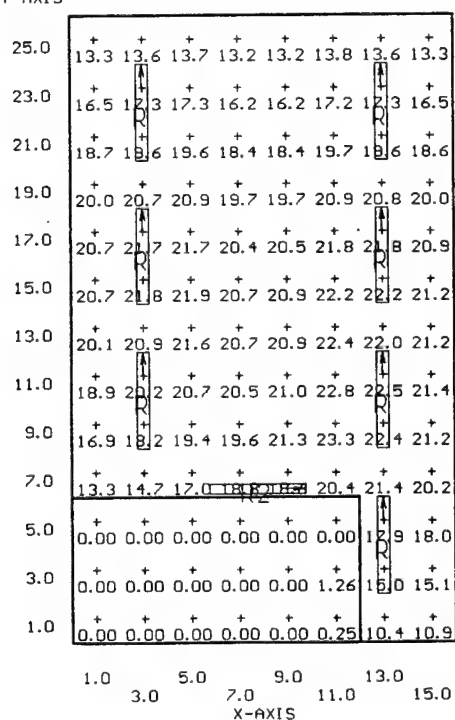
1.0 3.0 5.0 7.0 9.0 11.0 13.0 15.0 17.0 19.0 21.0 23.0 25.0 27.0 29.0 31.0
 X-AXIS

USI's LITE*PRO V2.27E Point-By-Point Numeric Output 16:29 26-Jan-95
 PROJECT: 63-410 AREA: LOCKER 2 GRID: Ceiling
 Values are FC, SCALE: 1 IN= 8.0FT, HORZ GRID (U), HORZ CALC, Z= 2.5
 Computed in accordance with IES recommendations

+ MIN=0.00 MAX=23.3 AVE=15.7 AVE/MIN=N/A MAX/MIN=N/A

R <7> = K8948A COLUMBIA R0140-A, (1) F40CW, LLF= 0.68
 R2 <1> = K8958 COLUMBIA W140-A, (1) F40CW, LLF= 0.60

Y-AXIS

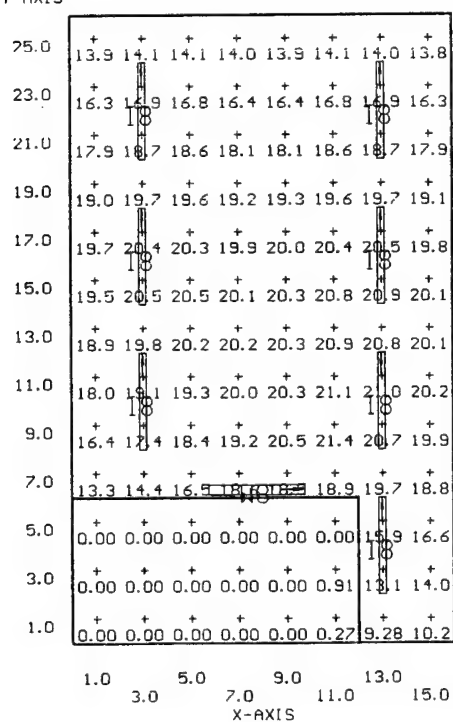


USI's LITE*PRO V2.27E Point-By-Point Numeric Output 11:45 15-Mar-95
 PROJECT: 63-410 AREA: LOCKER 2-N GRID: Ceiling
 Values are FC, SCALE: 1 IN= 8.0FT, HORZ GRID (U), HORZ CALC, Z= 2.5
 Computed in accordance with IES recommendations

+ MIN=0.00 MAX=21.4 AVE=15.0 AVE/MIN=N/A MAX/MIN=N/A

I8 <7> = K8959 COLUMBIA CH140, (1) F032/35K, LLF= 0.72
 W8 <1> = K8958 COLUMBIA W140-A, (1) F032/35K, LLF= 0.60

Y-AXIS

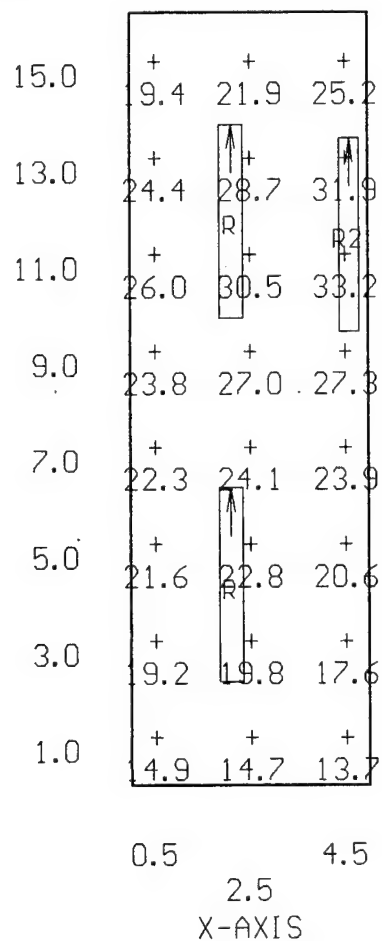


USI's LITE*PRO V2.27E Point-By-Point Numeric Output 11:48 27-Jan-95
 PROJECT: 63-410 AREA: RESTROOM 1 GRID: Ceiling
 Values are FC, SCALE: 1 IN= 4.0FT, HORZ GRID (U), HORZ CALC, Z= 2.5
 Computed in accordance with IES recommendations

+ MIN=13.7 MAX=33.2 AVE=23.1 AVE/MIN= 1.69 MAX/MIN= 2.43

R <2> = K8948A COLUMBIA R0140-A, <1> F40CW, LLF= 0.68
 R2 <1> = K8958 COLUMBIA W140-A, <1> F40CW, LLF= 0.60

Y-AXIS

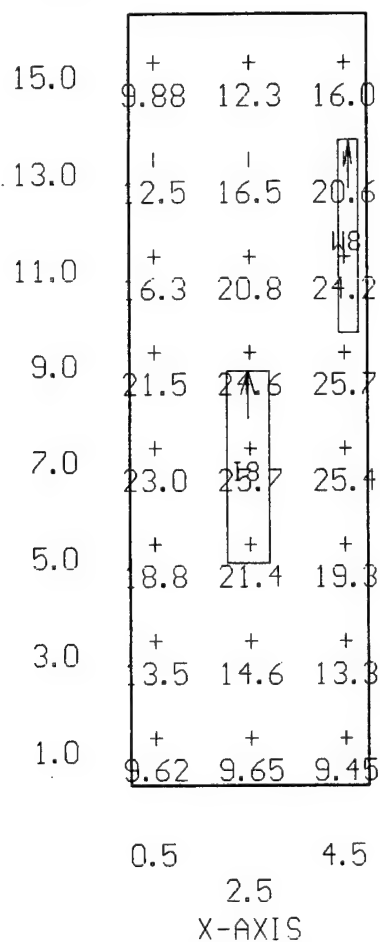


USI's LITE*PRO V2.27E Point-By-Point Numeric Output 11:16 15-Mar-95
 PROJECT: 63-410 AREA: RESTROOM 1-N GRID: Ceiling
 Values are FC, SCALE: 1 IN= 4.0FT, HORZ GRID (U), HORZ CALC, Z= 2.5
 Computed in accordance with IES recommendations

+ MIN=9.45 MAX=25.7 AVE=17.7 AVE/MIN= 1.87 MAX/MIN= 2.72

I8 <1> = 10333 COLUMBIA CSR140-PAF-EOCT, <1> F032/35K, LLF= 0.66
 W8 <1> = K8958 COLUMBIA W140-A, <1> F032/35K, LLF= 0.60

Y-AXIS

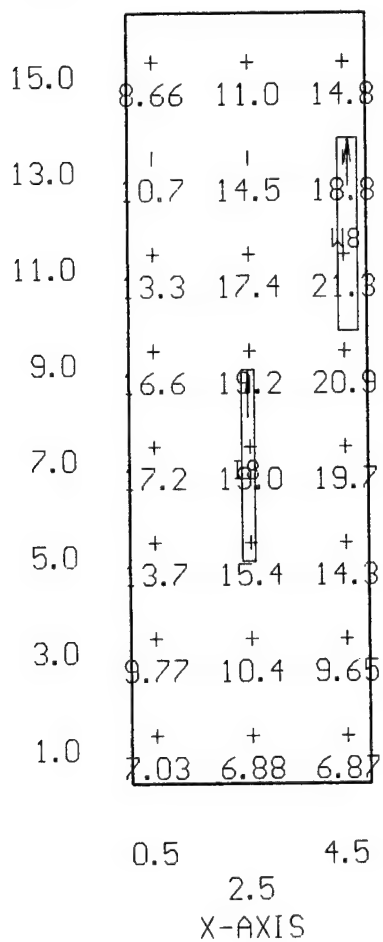


USI's LITE*PRO V2.27E Point-By-Point Numeric Output 11:47 15-Mar-95
 PROJECT: 63-410 AREA: RESTROOM 1-N GRID: Ceiling
 Values are FC, SCALE: 1 IN= 4.0FT, HORZ GRID (U), HORZ CALC, Z= 2.5
 Computed in accordance with IES recommendations

+ MIN=6.87 MAX=21.3 AVE=14.0 AVE/MIN= 2.04 MAX/MIN= 3.09

I8 <1> = K8959 COLUMBIA CH140, <1> F032/35K, LLF= 0.72
 W8 <1> = K8958 COLUMBIA W140-A, <1> F032/35K, LLF= 0.60

Y-AXIS



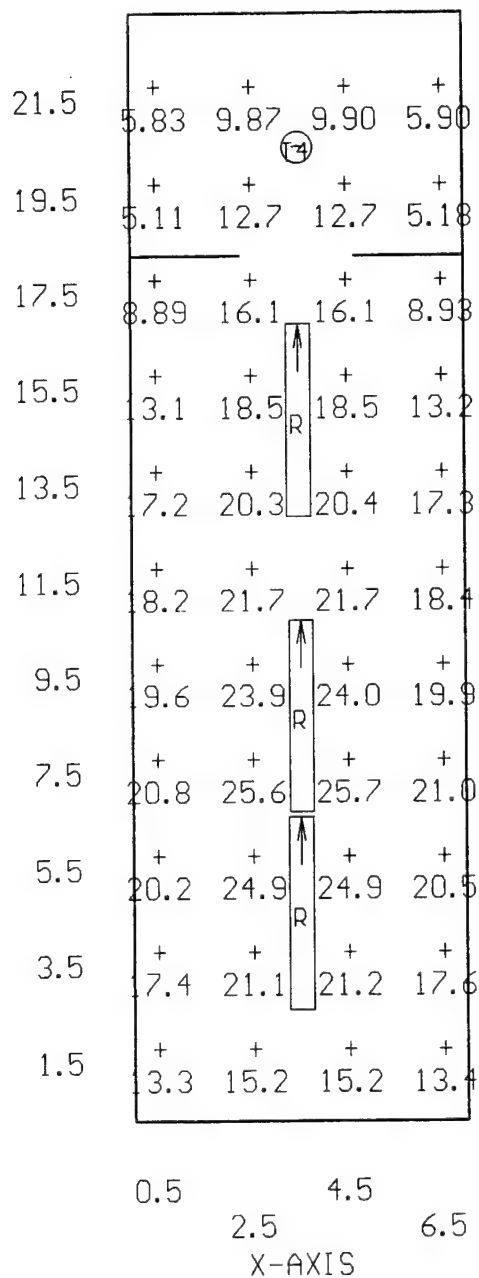
USI's LITE*PRO V2.27E Point-By-Point Numeric Output 14:18 27-Jan-95
 PROJECT: 63-410 AREA: LOCKER ROOM 2 GRID: Ceiling
 Values are FC, SCALE: 1 IN= 4.0FT, HORZ GRID (U), HORZ CALC, Z= 2.5
 Computed in accordance with IES recommendations

Page 1/1

+ MIN=5.11 MAX=25.7 AVE=16.8 AVE/MIN= 3.30 MAX/MIN= 5.02

R <3> = K8948A COLUMBIA R0140-A, <1> F40CW, LLF= 0.68
 T4 <1> = B1630B PRESCOLITE CFS8-472-SL8, <2> F9TT/27K, LLF= 0.62

Y-AXIS

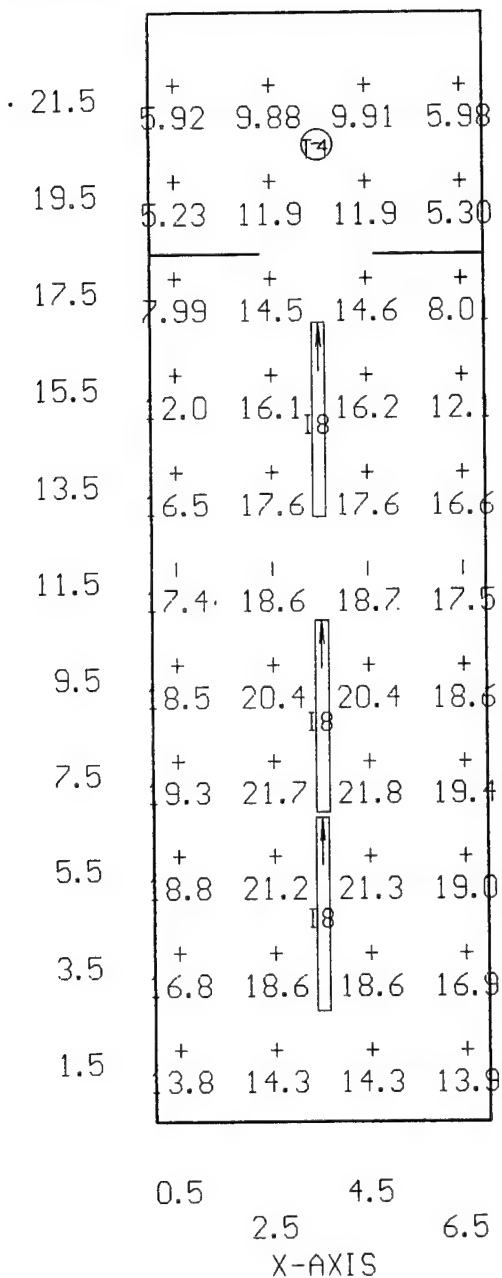


USI's LITE*PRO V2.27E Point-By-Point Numeric Output 11:49 15-Mar-95
 PROJECT: 63-410 AREA: LOCKER ROOM 2-N GRID: Ceiling
 Values are FC, SCALE: 1 IN= 4.0FT, HORZ GRID (U), HORZ CALC, Z= 2.5
 Computed in accordance with IES recommendations

+ MIN=5.23 MAX=21.8 AVE=15.4 AVE/MIN= 2.93 MAX/MIN= 4.16

I8 <3> = K8959 COLUMBIA CH140, <1> F032/35K, LLF= 0.72
 T4 <1> = B1630B PRESCOLITE CFS8-472-SL8, <2> F9TT/27K, LLF= 0.62

Y-AXIS

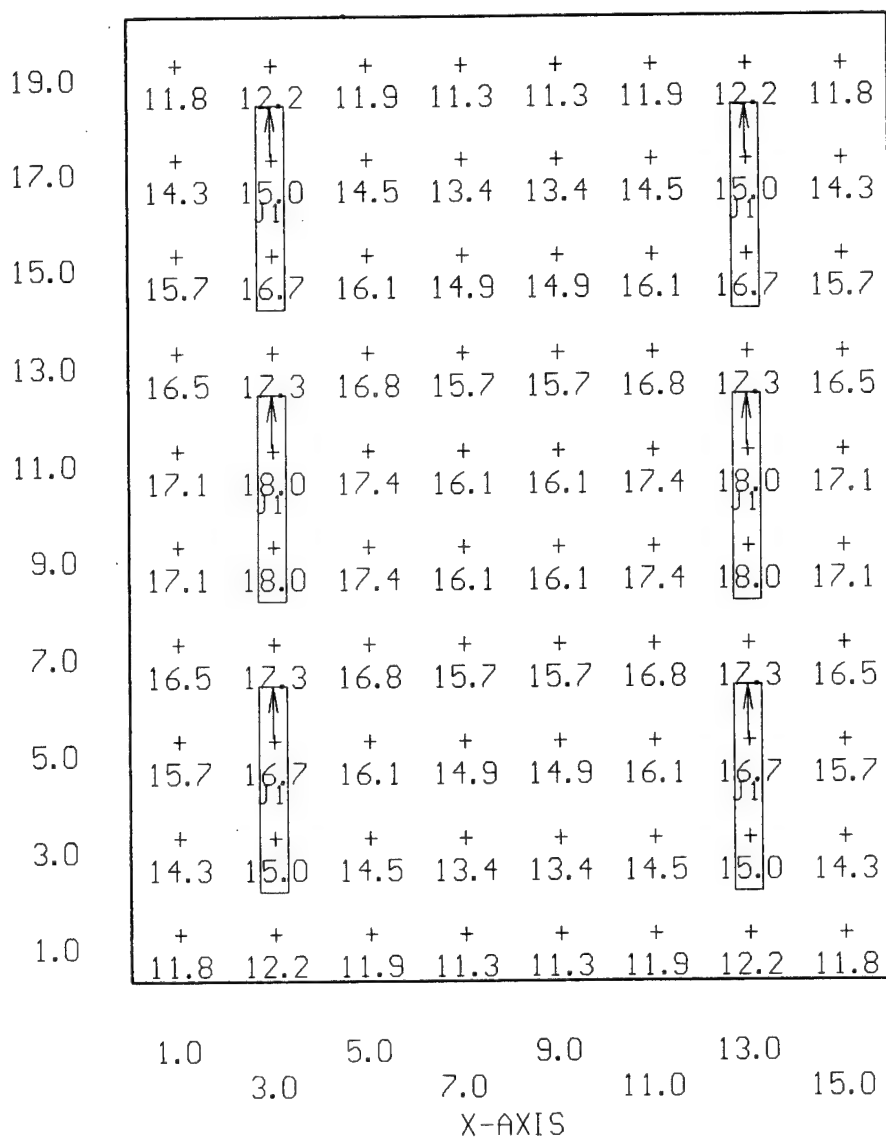


USI's LITE*PRO V2.27E Point-By-Point Numeric Output 16:37 26-Jan-95
 PROJECT: 63-410 AREA: SHOWERS 2 GRID: Ceiling
 Values are FC, SCALE: 1 IN= 4.0FT, HORZ GRID (U), HORZ CALC, Z= 2.5
 Computed in accordance with IES recommendations

+ MIN=11.3 MAX=18.0 AVE=15.1 AVE/MIN= 1.34 MAX/MIN= 1.60

J1 <6> = K9798X COLUMBIA LUN140-WL, <1> F40CW, LLF= 0.68

Y-AXIS

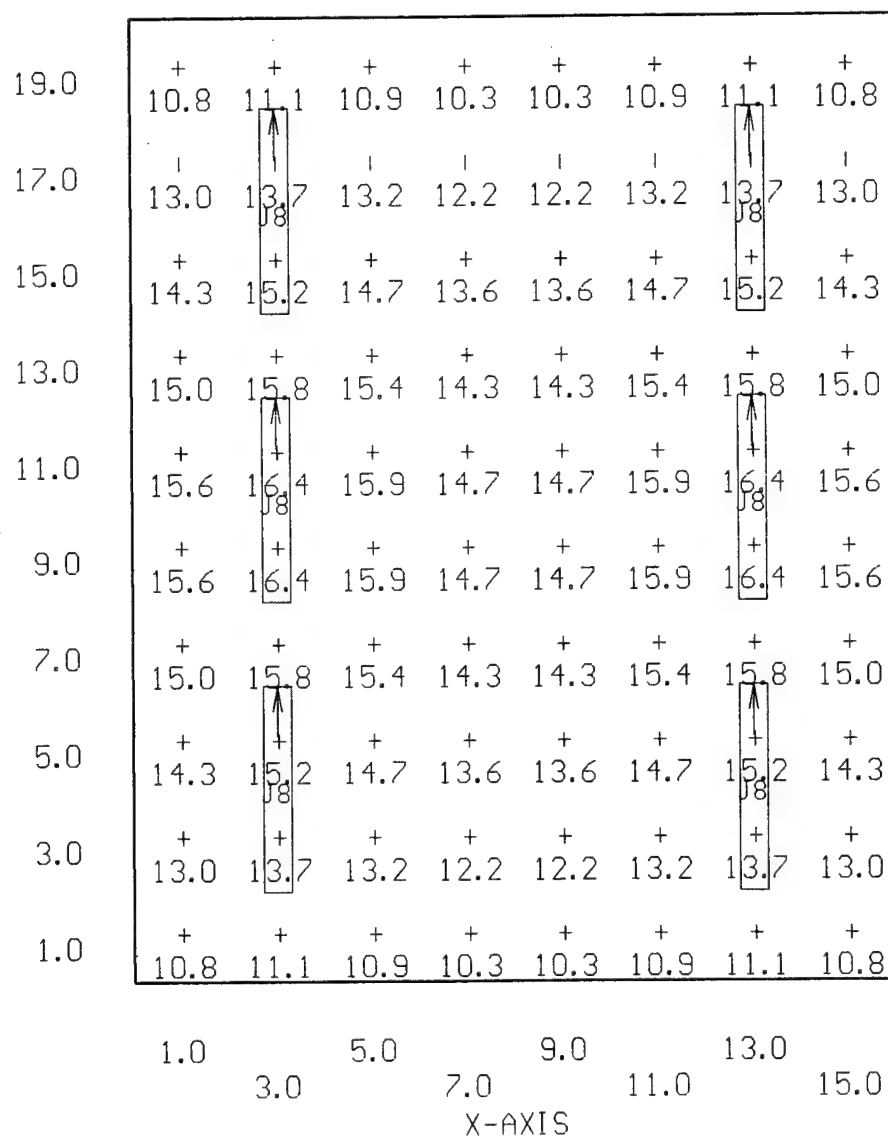


USI's LITE*PRO V2.27E Point-By-Point Numeric Output 11:19 15-Mar-95
 PROJECT: 63-410 AREA: SHOWERS 2-N GRID: Ceiling
 Values are FC, SCALE: 1 IN= 4.0FT, HORZ GRID (U), HORZ CALC, Z= 2.5
 Computed in accordance with IES recommendations

+ MIN=10.3 MAX=16.4 AVE=13.8 AVE/MIN= 1.34 MAX/MIN= 1.60

J8 <6> = K9798 COLUMBIA LUN140-DMR, <1> F032/35K, LLF= 0.67

Y-AXIS

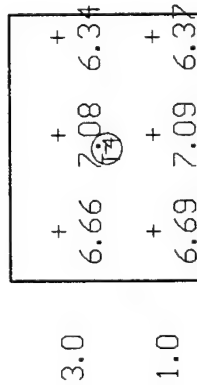


USI's LITE*PRO V2.27E Point-By-Point Numeric Output 14:21 27-Jan-95
 PROJECT: 63-410 AREA: ALCOVE 4 GRID: Ceiling
 Values are FC, SCALE: 1 IN= 4.0FT, HORZ GRID (U), HORZ CALC, Z= 2.5
 Computed in accordance with IES recommendations

+ MIN=6.34 MAX=7.09 AVE=6.71 AVE/MIN= 1.06 MAX/MIN= 1.12

T4 <1> = B1630B PRESCOLITE CFS8-472-SL8, <2> F9TT/27K, LLF= 0.62

Y-AXIS



1.0 3.0 5.0
 X-AXIS

USI's LITE*PRO V2.27E Point-By-Point Numeric Output 14:24 27-Jan-95
 PROJECT: 63-410 AREA: ALCOVES 5 & 6 GRID: Ceiling
 Values are FC, SCALE: 1 IN= 4.0FT, HORZ GRID (U), HORZ CALC, Z= 2.5
 Computed in accordance with IES recommendations

+ MIN=7.05 MAX=9.74 AVE=8.33 AVE/MIN= 1.18 MAX/MIN= 1.38

T4 <2> = B1630B PRESCOLITE CFS8-472-SL8, (2) F9TT/27K, LLF= 0.62

Y-AXIS

3.0	+	7.05	+	8.88	+	9.64	+	8.74	+	7.18
		(7)						(7)		
1.0	+	7.09	+	8.95	+	9.74	+	8.79	+	7.24

1.5 5.5 9.5

3.5 7.5

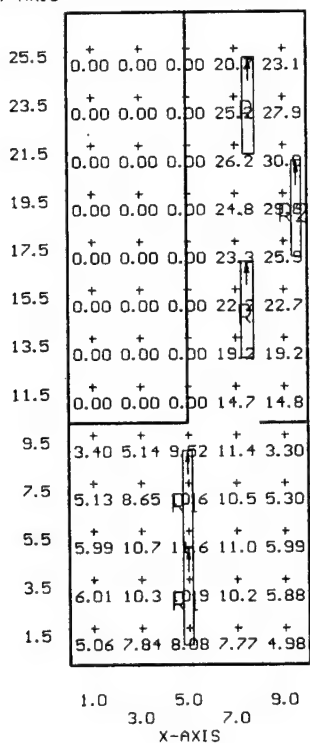
X-AXIS

USI's LITE*PRO V2.27E Point-By-Point Numeric Output 14:44 27-Jan-95
 PROJECT: 63-410 AREA: OPEN AREA/RR 2 GRID: Ceiling
 Values are FC, SCALE: 1 IN= 8.0FT, HORZ GRID (U), HORZ CALC, Z= 2.5
 Computed in accordance with IES recommendations

+ MIN=0.00 MAX=30.0 AVE=8.69 AVE/MIN=N/A MAX/MIN=N/A

R <2> = K8948A COLUMBIA R0140-A, (1) F40CW, LLF= 0.68
 R1 <2> = K8956 COLUMBIA AD140-A, (1) F40CW/WM, LLF= 0.68
 R2 <1> = K8958 COLUMBIA W140-A, (1) F40CW, LLF= 0.60

Y-AXIS

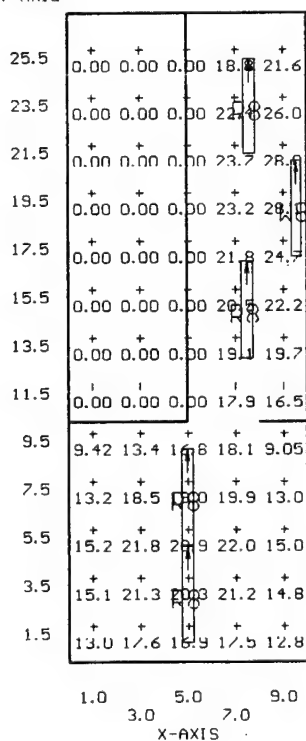


USI's LITE*PRO V2.27E Point-By-Point Numeric Output 11:50 15-Mar-95
 PROJECT: 63-410 AREA: OPN AREA/RR 2-N GRID: Ceiling
 Values are FC, SCALE: 1 IN= 8.0FT, HORZ GRID (U), HORZ CALC, Z= 2.5
 Computed in accordance with IES recommendations

+ MIN=0.00 MAX=28.1 AVE=11.8 AVE/MIN=N/A MAX/MIN=N/A

R8 <4> = L10654 COLUMBIA R0140-A-SPREF, <1> F032/35K, LLF= 0.67
 W8 <1> = K8958 COLUMBIA W140-A, <1> F032/35K, LLF= 0.60

Y-AXIS

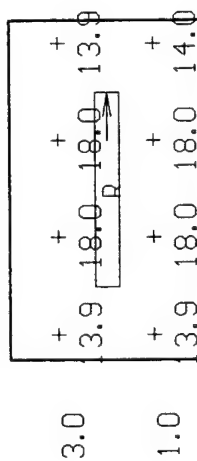


USI's LITE*PRO V2.27E Point-By-Point Numeric Output 14:50 27-Jan-95
 PROJECT: 63-410 AREA: ALCOVE 7 GRID: Ceiling
 Values are FC, SCALE: 1 IN= 4.0FT, HORZ GRID (U), HORZ CALC, Z= 2.5
 Computed in accordance with IES recommendations

+ MIN=13.9 MAX=18.0 AVE=16.0 AVE/MIN= 1.15 MAX/MIN= 1.30

R <1> = K8948A COLUMBIA R0140-A, <1> F40CW, LLF= 0.68

Y-AXIS

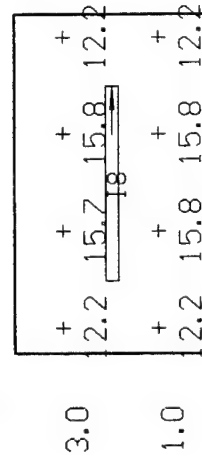


USI's LITE*PRO V2.27E Point-By-Point Numeric Output 11:52 15-Mar-95
 PROJECT: 63-410 AREA: ALCOVE 7-N GRID: Ceiling
 Values are FC, SCALE: 1 IN= 4.0FT, HORZ GRID (U), HCRZ CALC, Z= 2.5
 Computed in accordance with IES recommendations

+ MIN=12.2 MAX=15.8 AVE=14.0 AVE/MIN= 1.15 MAX/MIN= 1.30

I8 <1> = K8959 COLUMBIA CH140, <1> F032/35K, LLF= 0.72

Y-AXIS



0.5 2.5 4.5 6.5
 X-AXIS

USI's LITE*PRO V2.27E Point-By-Point Numeric Output 14:57 27-Jan-95
 PROJECT: 63-410 AREA: HALLWAY 1 GRID: Ceiling
 Values are FC, SCALE: 1 IN= 4.0FT, HORZ GRID (U), HORZ CALC, Z= 2.5
 Computed in accordance with IES recommendations

+ MIN=5.31 MAX=12.7 AVE=10.1 AVE/MIN= 1.90 MAX/MIN= 2.38

R <2> = K8948A COLUMBIA R0140-A, <1> F40CW, LLF= 0.68

Y-AXIS

5.0	+	7.80	+	10.3	+	11.9	+	11.6	+	10.4	+	9.95	+	10.8	+	11.6	+	10.7	+	8.19	+	5.31
3.0	+	7.94	+	10.8	+	12.7	+	12.2	+	10.7	+	10.3	+	11.2	+	12.4	+	11.5	+	8.59	+	5.37
1.0	+	7.92	+	10.5	+	12.2	+	11.8	+	10.6	+	10.2	+	11.1	+	12.1	+	11.1	+	8.47	+	5.47

1.0 3.0 5.0 7.0 9.0 11.0 13.0 15.0 17.0 19.0 21.0
 X-AXIS

USI's LITE*PRO V2.27E Point-By-Point Numeric Output 13:51 15-Mar-95
 PROJECT: 63-410 AREA: HALLWAY 1-N GRID: Ceiling
 Values are FC, SCALE: 1 IN= 4.0FT, HORZ GRID (U), HORZ CALC, Z= 2.5
 Computed in accordance with IES recommendations

+ MIN=4.95 MAX=11.5 AVE=9.37 AVE/MIN= 1.89 MAX/MIN= 2.32

R8 <2> = L10654 COLUMBIA R0140-A-SPREF, <1> F032/35K, LLF= 0.67

Y-AXIS

5.0	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
	7.41	9.90	11.4	11.1	9.91	9.47	10.3	11.2	10.4	7.89	5.07								
3.0	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
	7.22	9.39	10.7	10.5	9.70	9.47	9.99	10.5	9.69	7.56	4.95								
1.0	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
	7.50	9.98	11.5	11.2	10.0	9.66	10.5	11.4	10.5	8.01	5.19								

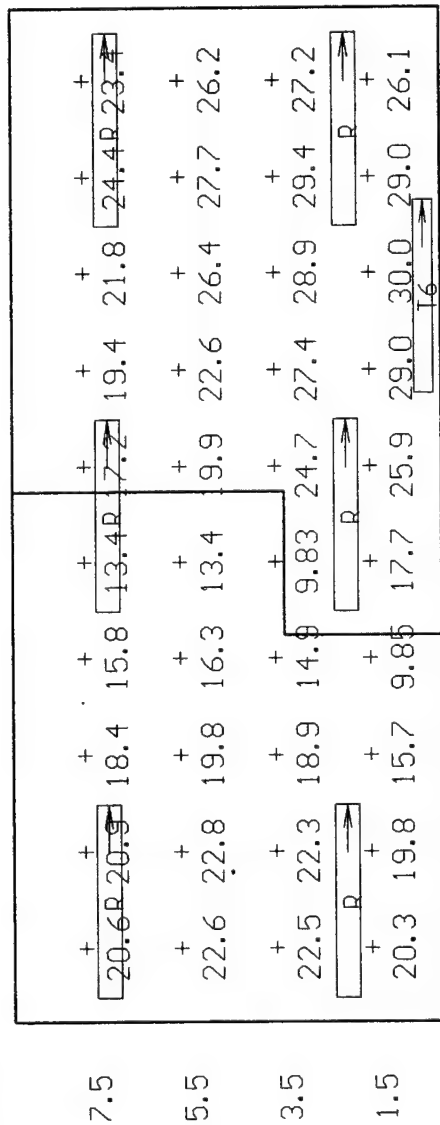
1.0 3.0 5.0 7.0 9.0 11.0 13.0 15.0 17.0 19.0 21.0
 X-AXIS

USI's LITE*PRO V2.27E Point-By-Point Numeric Output 15:22 27-Jan-95
PROJECT: 63-410 AREA: OFFICE 1/KTCHN GRID: Ceiling
Values are FC, SCALE: 1 IN= 4.0FT, HORZ GRID (U), HORZ CALC, Z= 2.5
Computed in accordance with IES recommendations

+ MIN=9.83	MAX=30.0	AVE=21.6	AVE/MIN=	2.19	MAX/MIN=	3.05
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R <6> = K8948A COLUMBIA R0140-A, <1> F40CW, LLF= 0.68
T6 <1> = K8958 COLUMBIA W140-A, <1> F30T12-WW/RS, LLF= 0.60

Y-AXIS



X-AXIS

USI's LITE*PRO V2.27E Point-By-Point Numeric Output 13:56 15-Mar-95
PROJECT: 63-410 AREA: OFFICE 1/KTCHN-N GRID: Ceiling
Values are FC, SCALE: 1 IN= 4.3FT, HORZ GRID (U), HORZ CALC, Z= 2.5
Computed in accordance with IES recommendations

+ MIN=17.3	MAX=51.1	AVE=38.3	AVE/MIN=	2.22	MAX/MIN=	2.96
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WJ2 <6> = S068 COLUMBIA AW240-A, <2> F032/35K, LLF= 0.66
WJ8 <1> = K8958 COLUMBIA W140-A, <1> F032/35K, LLF= 0.60

Y-AXIS

[illegible]

X-AXIS

USI's LITE*PRO V2.27E Point-By-Point Numeric Output 15:29 27-Jan-95
 PROJECT: 63-410 AREA: BREAK ROOM GRID: Ceiling
 Values are FC, SCALE: 1 IN= 8.0FT, HORZ GRID (U), HORZ CALC, Z= 2.5
 Computed in accordance with IES recommendations

+ MIN=16.4 MAX=21.8 AVE=20.0 AVE/MIN= 1.22 MAX/MIN= 1.33

R <12> = K8948A COLUMBIA R0140-A, (1) F40CW, LLF= 0.68

Y-AXIS

19.5	16.4	18.5	18.8	18.7	19.4	20.0	19.5	19.0	19.5	20.0	19.4	18.7	18.8	18.5	16.4
17.5	17.1	19.5	19.8	19.6	20.4	21.0	20.5	19.9	20.5	21.0	20.4	19.6	19.8	19.5	17.1
15.5	17.8	20.0	20.5	20.6	21.2	21.6	21.3	20.9	21.3	21.6	21.2	20.6	20.5	20.0	17.8
13.5	17.9	20.2	20.7	20.7	21.3	21.8	21.4	21.1	21.4	21.8	21.3	20.7	20.7	20.2	17.9
11.5	17.6	20.1	20.4	20.2	21.0	21.6	21.1	20.5	21.1	21.6	21.0	20.2	20.4	20.1	17.6
9.5	17.6	20.1	20.4	20.2	21.0	21.6	21.1	20.5	21.1	21.6	21.0	20.2	20.4	20.1	17.6
7.5	17.9	20.2	20.7	20.7	21.3	21.8	21.4	21.1	21.4	21.8	21.3	20.7	20.7	20.2	17.9
5.5	17.8	20.0	20.5	20.6	21.2	21.6	21.3	20.9	21.3	21.6	21.2	20.6	20.5	20.0	17.8
3.5	17.1	18.5	18.8	19.6	20.4	21.0	20.5	19.9	20.5	21.0	20.4	19.6	19.8	18.5	17.1
1.5	16.4	18.5	18.8	18.7	19.4	20.0	19.5	19.0	19.5	20.0	19.4	18.7	18.8	18.5	16.4

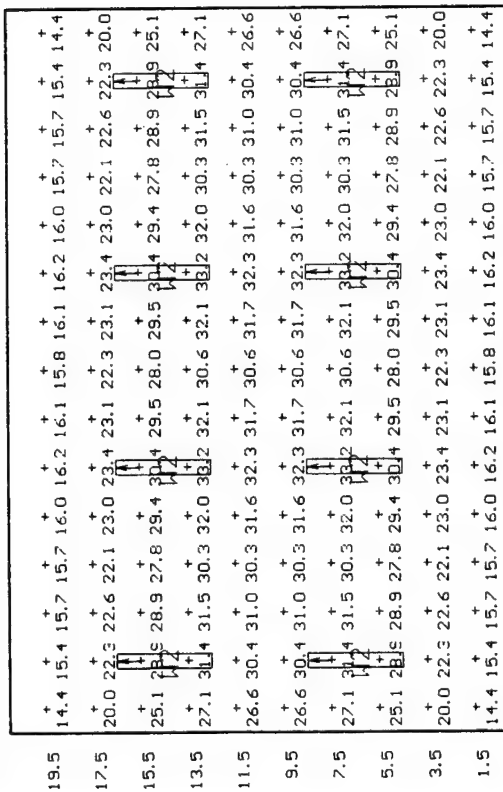
1.0 3.0 5.0 7.0 9.0 11.0 13.0 15.0 17.0 19.0 21.0 23.0 25.0 27.0 29.0
 X-AXIS

USI's LITE*PRO V2.27E Point-By-Point Numeric Output 14:00 15-Mar-95
 PROJECT: 63-410 AREA: BREAK ROOM-N GRID: Ceiling
 Values are FC, SCALE: 1 IN= 8.0FT, HORZ GRID (U), HORZ CALC, Z= 2.5
 Computed in accordance with IES recommendations

+ YIN=14.4 MAX=33.2 AVE=25.6 AVE/MIN= 1.78 MAX/MIN= 2.31

W2 <3> = 9068 COLUMBIA A1240-A, <2> F032/35K, LLF= 0.66

Y-AXIS



1.0 3.0 5.0 7.0 9.0 11.0 13.0 15.0 17.0 19.0 21.0 23.0 25.0 27.0 29.0
 X-AXIS

USI's LITE*PRO V2.27E Point-By-Point Numeric Output 15:38 27-Jan-95
PROJECT: 63-410 AREA: OFFICES 3 & 4 GRID: Ceiling
Values are FC, SCALE: 1 IN= 4.0FT, HORZ GRID (U), HORZ CALC, Z= 2.5
Computed in accordance with IES recommendations

+ MIN=5.59	MAX=9.46	AVE=7.73	AVE/MIN=	1.38	MAX/MIN=	1.69
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R1 <6> = K8956 COLUMBIA AD140-A, (1) F40CW-WM, LLF= 0.68

Y-AXIS

11.0	$\begin{array}{ccccccc} + & + & + & + & + & + & + \\ 6.35 & 7.55 & 5.59 & 6.27 & 8.42 & 9.12 & 9.19 \\ \hline & \cancel{7.55} & \cancel{5.59} & \cancel{6.27} & \cancel{8.42} & \cancel{9.12} & \cancel{9.19} \\ & \text{pl} & & & & & \text{pl} \end{array}$	$\begin{array}{ccccccc} + & + & + & + & + & + & + \\ 9.04 & 7.24 & & & & & \\ \hline & \cancel{9.04} & \cancel{7.24} & & & & \\ & \text{pl} & & & & & \text{pl} \end{array}$
9.0	$\begin{array}{ccccccc} + & + & + & + & + & + & + \\ 6.37 & 7.63 & 6.10 & 6.97 & 8.99 & 9.38 & 9.46 \\ \hline & & & & & & \\ & & & & & & \end{array}$	$\begin{array}{ccccccc} + & + & + & + & + & + & + \\ 9.28 & 7.38 & & & & & \\ \hline & & & & & & \end{array}$
7.0	$\begin{array}{ccccccc} + & + & + & + & + & + & + \\ 5.96 & 7.05 & 5.81 & 6.88 & 8.70 & 9.02 & 9.08 \\ \hline & & & & & & \\ & & & & & & \end{array}$	$\begin{array}{ccccccc} + & + & + & + & + & + & + \\ 8.85 & 7.11 & & & & & \\ \hline & & & & & & \end{array}$
5.0	$\begin{array}{ccccccc} + & + & + & + & + & + & + \\ 5.96 & 7.05 & 5.81 & 6.88 & 8.70 & 9.02 & 9.08 \\ \hline & & & & & & \\ & & & & & & \end{array}$	$\begin{array}{ccccccc} + & + & + & + & + & + & + \\ 8.85 & 7.11 & & & & & \\ \hline & & & & & & \end{array}$
3.0	$\begin{array}{ccccccc} + & + & + & + & + & + & + \\ 6.37 & 7.63 & 6.10 & 6.97 & 8.99 & 9.38 & 9.46 \\ \hline & \cancel{7.63} & \cancel{6.10} & \cancel{6.97} & \cancel{8.99} & \cancel{9.38} & \cancel{9.46} \\ & \text{pl} & & & & & \text{pl} \end{array}$	$\begin{array}{ccccccc} + & + & + & + & + & + & + \\ 9.28 & 7.38 & & & & & \\ \hline & \cancel{9.28} & \cancel{7.38} & & & & \\ & \text{pl} & & & & & \text{pl} \end{array}$
1.0	$\begin{array}{ccccccc} + & + & + & + & + & + & + \\ 6.35 & 7.55 & 5.59 & 6.27 & 8.42 & 9.12 & 9.19 \\ \hline & & & & & & \\ & & & & & & \end{array}$	$\begin{array}{ccccccc} + & + & + & + & + & + & + \\ 9.04 & 7.24 & & & & & \\ \hline & & & & & & \\ & & & & & & \end{array}$

X-AXIS

USI's LITE*PRO U2.27E Point-By-Point Numeric Output 14:01 15-Mar-95
 PROJECT: 63-410 AREA: OFFICES 3 & 4-N GRID: Ceiling
 Values are FC, SCALE: 1 IN= 4.0FT, HORZ GRID (U), HORZ CALC, Z= 2.5
 Computed in accordance with IES recommendations

+ MIN=22.8 MAX=42.1 AVE=33.1 AVE/MIN= 1.46 MAX/MIN= 1.85

W2 <6> = 9068 COLUMBIA AW240-A, <2> F032/35K, LLF= 0.66

Y-AXIS

11.0	25.9	28.2	22.8	27.7	35.5	40.0	40.2	37.9	31.7
9.0	26.7	29.3	25.5	31.2	38.6	41.8	42.1	39.7	33.2
7.0	25.5	27.6	24.7	30.8	37.3	40.4	40.5	37.9	32.0
5.0	25.5	27.6	24.7	30.8	37.3	40.4	40.5	37.9	32.0
3.0	26.7	29.3	25.5	31.2	38.6	41.8	42.1	39.7	33.2
1.0	25.9	28.2	22.8	27.7	35.5	40.0	40.2	37.9	31.7

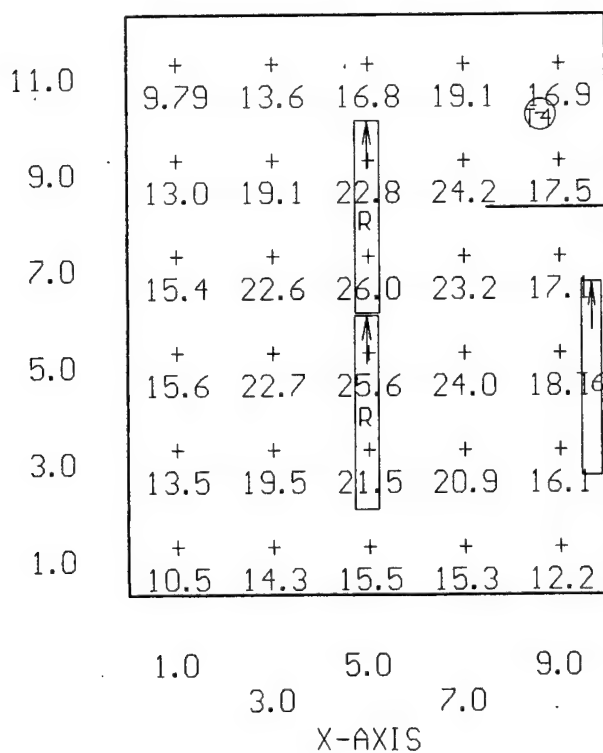
1.5 3.5 5.5 7.5 9.5 11.5 13.5 15.5 17.5
 X-AXIS

USI's LITE*PRO V2.27E Point-By-Point Numeric Output 16:03 27-Jan-95
 PROJECT: 63-410 AREA: MENS TOILET GRID: Ceiling
 Values are FC, SCALE: 1 IN= 4.0FT, HORZ GRID (U), HORZ CALC, Z= 2.5
 Computed in accordance with IES recommendations

+ MIN=9.79 MAX=26.0 AVE=18.1 AVE/MIN= 1.85 MAX/MIN= 2.66

R <2> = K8948A COLUMBIA R0140-A, <1> F40CW, LLF= 0.68
 T4 <1> = B1630B PRESCOLITE CFS8-472-SL8, <2> F9TT/27K, LLF= 0.62
 T6 <1> = K8958 COLUMBIA W140-A, <1> F30T12/WW/RS, LLF= 0.60

Y-AXIS

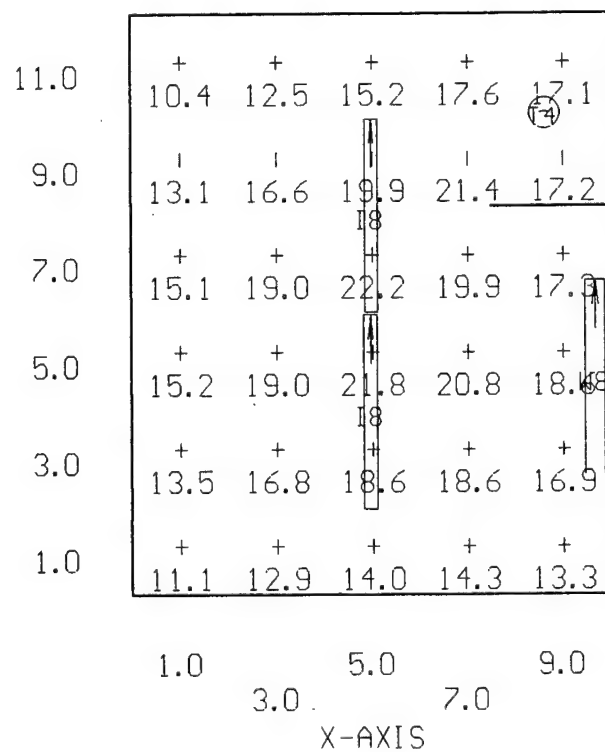


USI's LITE*PRO V2.27E Point-By-Point Numeric Output 14:04 15-Mar-95
 PROJECT: 63-410 AREA: MENS TOILET-N GRID: Ceiling
 Values are FC, SCALE: 1 IN= 4.0FT, HORZ GRID (U), HORZ CALC, Z= 2.5
 Computed in accordance with IES recommendations

+ MIN=10.4 MAX=22.2 AVE=16.7 AVE/MIN= 1.61 MAX/MIN= 2.14

I8 <2> = K8959 COLUMBIA CH140, (1) F032/35K, LLF= 0.72
 T4 <1> = B1630B PRESCOLITE CFS8-472-SL8, (2) F9TT/27K, LLF= 0.62
 W8 <1> = K8958 COLUMBIA W140-A, (1) F032/35K, LLF= 0.60

Y-AXIS



USI's LITE*PRO V2.27E Point-By-Point Numeric Output 16:28 27-Jan-95
PROJECT: 63-410 AREA: HALL/JAN/RR ENT GRID: Ceiling
Values are FC, SCALE: 1 IN= 4.0FT, HORZ GRID (U), HORZ CALC, Z= 2.5
Computed in accordance with IES recommendations

+ MIN=0.00	MAX=16.5	AUE=9.68	AUE/MIN=N/A	MAX/MIN=N/A
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R <3> = K8948A COLUMBIA R0140-A, <1> F40CW, LLF= 0.68
T4 <2> = B1630B PRESCOLITE CFS8-472-SL8, <2> F911-27K, LLF= 0.62

Y-AXIS

9.0	+	6.42	+	9.45	+	11.8	+	13.0	+	13.9	+	14.6	+	15.0	+	14.8	+	14.3	+	11.4	+	8.66
7.0	+	6.49	+	9.99	+	12.09	+	14.2	+	14.8	+	15.9	+	16.5	+	6.0	+	15.6	+	14.2	+	8.88
5.0	+	6.25	+	9.62	+	12.5	+	13.8	+	14.6	+	15.6	+	16.2	+	15.9	+	15.4	+	14.2	+	8.35
3.0	+	5.30	+	7.90	+	9.89	+	10.9	+	0.00	+	0.00	+	0.00	+	0.00	+	0.00	+	12.7	+	6.77
1.0	+	3.92	+	5.41	+	6.20	+	5.13	+	6.11	+	6.28	+	5.67	+	5.80	+	5.94	+	0.00	+	4.73

X-AXIS

R8 <3> = L10654 COLUMBIA R0140-A-SPREF, <1> F032/35K, LLF= 0.67
T4 <2> = B1630B PRESCOLITE CFS8-472-SL8, <2> F9TT/27K, LLF= 0.62

Y-AXIS

[illegible]

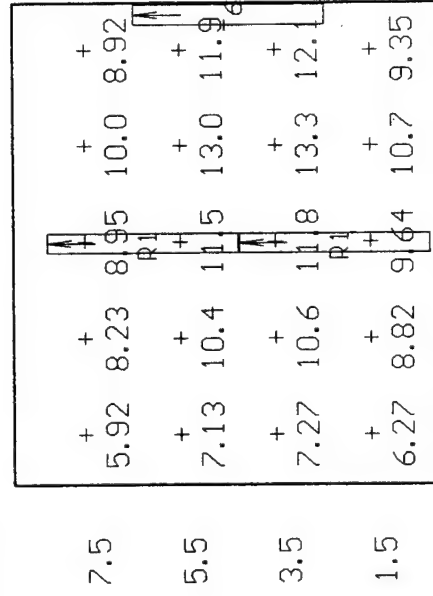
X-AXIS

USI's LITE*PRO V2.27E Point-By-Point Numeric Output 16:32 27-Jan-95
 PROJECT: 63-410 AREA: WOMENS TOILET GRID: Ceiling
 Values are FC, SCALE: 1 IN= 4.0FT, HORZ GRID (U), HORZ CALC, Z= 2.5
 Computed in accordance with IES recommendations

+ MIN=5.92 MAX=13.3 AVE=9.78 AVE/MIN= 1.65 MAX/MIN= 2.24

R1 <2> = K8956 COLUMBIA AD140-A, <1> F40CW/WM, LLF= 0.68
 T6 <1> = K8958 COLUMBIA W140-A, <1> F30T12/WW/RS, LLF= 0.60

Y-AXIS

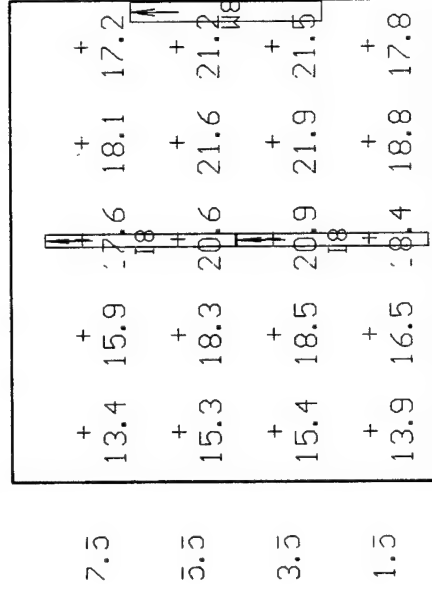


USI's LITE*PRO V2.27E Point-By-Point Numeric Output 14:08 15-Mar-95
 PROJECT: 63-410 AREA: WOMENS TOILET-N GRID: Ceiling
 Values are FC, SCALE: 1 IN= 4.0FT, HORZ GRID (U), HORZ CALC, Z= 2.5
 Computed in accordance with IES recommendations

+ MIN=13.4 MAX=21.9 AVE=18.1 AVE/MIN= 1.35 MAX/MIN= 1.63

18 <2> = K8959 COLUMBIA CH140, <1> F032/35K, LLF= 0.72
 W8 <1> = K8958 COLUMBIA W140-A, <1> F032/35K, LLF= 0.60

Y-AXIS



1.0 3.0 5.0 7.0 9.0
 X-AXIS

USI's LITE*PRO V2.27E Point-By-Point Numeric Output 16:36 27-Jan-95
 PROJECT: 63-410 AREA: ENTRANCE 2 GRID: Ceiling
 Values are FC, SCALE: 1 IN= 4.0FT, HORZ GRID (U), HORZ CALC, Z= 2.5
 Computed in accordance with IES recommendations

+ MIN=2.96 MAX=5.80 AVE=4.26 AVE/MIN= 1.44 MAX/MIN= 1.96

R1 <1> = K8956 COLUMBIA AD140-A, <1> F40CW/WM, LLF= 0.68

Y-AXIS

7.5	+	+	+	+
	2.96	4.37	4.46	3.12
5.5	+	+	+	+
	3.55	5.66	5.78	3.78
3.5	+	+	+	+
	3.55	5.68	5.80	3.78
1.5	+	+	+	+
	3.09	4.60	4.69	3.26

1.0 5.0 7.0
 3.0
 X-AXIS

USI's LITE*PRO U2.27E Point-By-Point Numeric Output: 14:10 15-Mar-95
 PROJECT: 63-410 AREA: ENTRANCE 2-N GRID: Ceiling
 Values are FC, SCALE: 1 IN= 4.0FT, HORZ GRID (U), HORZ CALC, Z= 2.5
 Computed in accordance with IES recommendations

+ MIN=7.89 MAX=10.2 AVE=9.17 AVE/MIN= 1.16 MAX/MIN= 1.30

R8 <1> = L10654 COLUMBIA R0140-A-SPREF, <1> F032/3EK, LL= 0.67

Y-AXIS

7.5	+	7.89	+	9.72	+	9.80	+	8.09
5.5	+	8.48	+	10.1	+	10.2	+	8.70
3.5	+	8.44	+	10.0	+	10.1	+	8.66
1.5	+	8.11	+	10.0	+	10.1	+	8.33

1.0 3.0 5.0 7.0
 X-AXIS

USI's LITE*PRO V2.27E Point-By-Point Numeric Output 16:40 27-Jan-95
 PROJECT: 63-410 AREA: WOMENS ALCOVE GRID: Ceiling
 Values are FC, SCALE: 1 IN= 4.0FT, HORZ GRID (U), HORZ CALC, Z= 2.5
 Computed in accordance with IES recommendations

+ MIN=8.04 MAX=9.37 AVE=8.60 AVE/MIN= 1.07 MAX/MIN= 1.17

T4 <1> = B1630B PRESCOLITE CFS8-472-SL8, <2> F9TT/27K, LLF= 0.62

Y-AXIS

4.5	+	+
	8.06	8.04
2.5	+	+
	9.37	9.36
0.5	+	+
	8.40	8.39

1.0 3.0
 X-AXIS

USI's LITE*PRO V2.27E Point-By-Point Numeric Output 16:41 27-Jan-95
 PROJECT: 63-410 AREA: MENS ALCOVE GRID: Ceiling
 Values are FC, SCALE: 1 IN= 4.0FT, HORZ GRID (U), HORZ CALC, Z= 2.5
 Computed in accordance with IES recommendations

+ MIN=6.60 MAX=7.27 AVE=6.88 AVE/MIN= 1.04 MAX/MIN= 1.10

T4 <1> = B1630B PRESCOLITE CFS8-472-SL8, <2> F9TT/27K, LLF= 0.62

Y-AXIS

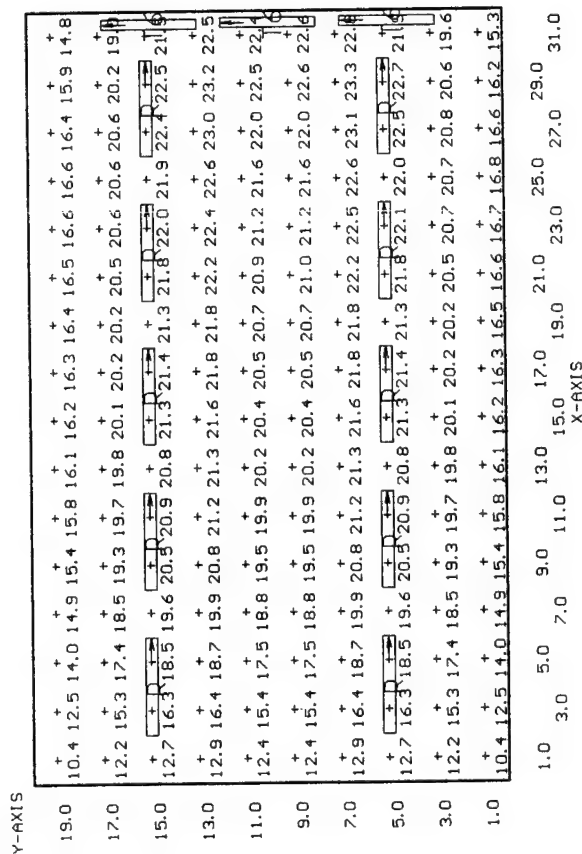
4.5	+	+
	6.60	6.60
2.5	+	+
	7.27	7.27
0.5	+	+
	6.78	6.77

1.0 3.0
 X-AXIS

USI's LITE*PRO V2.27E Point-By-Point Numeric Output 16:50 27-Jan-95
 PROJECT: 63-410 AREA: MENS CHANGE GRID: Ceiling
 Values are FC, SCALE: 1 IN= 8.0FT, HORZ GRID (U), HORZ CALC, Z= 2.5
 Computed in accordance with IES recommendations

+ MIN=10.4 MAX=23.3 AVE=19.1 AVE/MIN= 1.84 MAX/MIN= 2.25

R <10> = K8948A COLUMBIA R0140-A, <1> F40CW, LLF= 0.68
 T6 <3> = K8958 COLUMBIA W140-A, <1> F30T12/WW/RS, LLF= 0.60

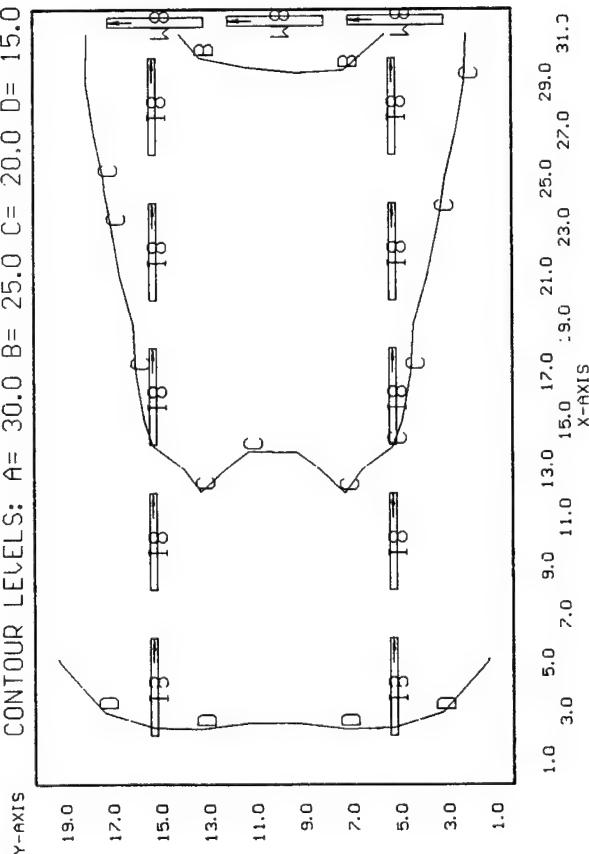


USI's LITE*PRO V2.27E Point-By-Point Numeric Output 14:12 15-Mar-95
 PROJECT: 63-410 AREA: MENS CHANGE-N GRID: Ceiling
 Values are FC, SCALE: IN= 8.0FT, HORZ GRID (U), HORZ CALC, Z= 2.5
 Computed in accordance with IES recommendations

+ MIN=12.0 MAX=26.2 AVE=19.2 AVE/MIN= 1.59 MAX/MIN= 2.17

I8 <10> = K8959 COLUMBIA CH140, <1> F032/35K, LLF= 0.72
 W8 <3> = K8958 COLUMBIA W140-A, <1> F032/35K, LLF= 0.60

CONTOUR LEVELS: A= 30.0 B= 25.0 C= 20.0 D= 15.0 E= 10.0



USI's LITE*PRO V2.27E Point-By-Point Numeric Output 09:32 30-Jan-95
 PROJECT: 63-410 AREA: MENS SHOWER GRID: Ceiling
 Values are FC, SCALE: 1 IN= 8.0FT, HORZ GRID (U), HORZ CALC, Z= 2.5
 Computed in accordance with IES recommendations

+ MIN=5.07 MAX=16.9 AVE=12.4 AVE/MIN= 2.44 MAX/MIN= 3.34

J1 <9> = K9798X COLUMBIA LUN140-WL, (1) F40CW, LLF= 0.68
 T4 <1> = B1630B PRESCOLITE CFS8-472-SL8, (2) F9TT/27K, LLF= 0.62

Y-AXIS

19.0	8.66	10.2	11.2	11.8	12.4	12.9	13.1	13.2	13.1	12.5	10.9	8.38	5.11	6.10	6.35	5.92
17.0	9.59	11.9	13.3	14.0	14.8	15.2	15.3	15.6	15.4	14.8	13.7	11.4	6.92	8.85	9.09	7.93
15.0	9.91	12.8	14.2	14.9	15.8	16.3	16.4	16.7	16.1	15.4	13.0	8.39	10.8	10.8	9.02	+
13.0	9.30	11.7	13.2	14.2	15.2	15.8	16.0	16.4	16.4	15.9	15.4	13.8	9.37	11.2	10.9	9.20
11.0	8.12	9.85	11.2	12.2	13.5	14.4	14.8	15.2	15.2	14.9	14.3	11.9	11.0	10.4	8.97	+
9.0	6.54	8.68	8.97	11.0	12.8	14.0	14.7	15.1	15.2	15.1	15.1	15.0	13.6	12.4	11.2	9.45
7.0	6.93	6.77	8.49	10.7	13.2	14.9	15.6	16.3	16.5	16.4	16.6	16.3	15.1	14.4	12.7	10.3
5.0	7.46	7.02	7.93	10.2	13.7	14.9	15.8	16.8	16.9	16.8	16.9	16.6	15.9	15.0	13.3	10.6
3.0	7.00	6.66	6.35	8.81	11.5	13.5	14.7	15.5	15.8	15.7	15.4	14.8	14.0	12.6	10.2	+
1.0	5.57	5.26	5.07	6.62	8.44	11.1	12.6	13.2	13.4	13.4	13.3	12.9	12.5	11.8	10.8	9.27

1.0 3.0 5.0 7.0 9.0 11.0 13.0 15.0 17.0 19.0 21.0 23.0 25.0 27.0 29.0 31.0
 X-AXIS

USI's LITE*PRO v2.27E Point-By-Point Numeric Output 14:15 15-Mar-95
 PROJECT: 63-410 AREA: MENS SHOWER-N GRID: Ceiling
 Values are FC, SCALE: 1 IN= 8.0FT, HORZ GRID (U), HORZ CALC, Z= 2.5
 Computed in accordance with IES recommendations

MAX=15.5	AVE=11.3	AVE./MIN=	2.44	MAX./MIN=	3.34
MIN=4.63					

J8 <9> = K9798 COLUMBIA LUN140-DMR, (1) F032/35K, LLF= 0.67
T4 <1> = B1630B PRESCOLITE CFS8-472-SL8, (2) F9TT/27K, L_F= 0.62

Y-AXIS	19.0	17.0	15.0	13.0	11.0	9.0	7.0	5.0	3.0	1.0	X-AXIS					
19.0	7.90	9.31	10.2	10.8	11.3	11.7	11.9	12.0	11.9	11.4	9.95	7.64	5.66	5.57	5.79	5.40
17.0	8.76	10.9	12.2	12.8	13.5	13.9	14.0	14.2	14.1	13.5	12.5	10.4	6.31	8.07	8.29	7.23
15.0	9.05	11.5	12.9	13.6	14.4	14.9	15.0	15.3	15.2	14.6	14.0	11.8	7.65	9.67	9.86	8.22
13.0	8.50	10.7	12.1	12.9	13.8	14.4	14.6	14.9	14.9	14.5	14.1	12.6	8.55	10.2	9.97	8.39
11.0	7.46	9.04	10.2	11.1	12.3	13.1	13.5	13.8	13.9	13.6	13.1	13.0	10.8	10.1	9.50	8.18
9.0	6.13	8.07	8.19	10.0	11.7	12.8	13.4	13.8	13.9	13.8	13.8	13.7	12.4	11.3	10.2	8.62
7.0	6.66	6.50	7.74	9.78	12.1	13.6	14.2	14.8	15.0	15.2	14.6	13.8	13.2	11.6	9.36	
5.0	7.28	6.88	6.87	9.29	11.9	13.6	14.4	15.2	15.4	15.4	15.5	15.2	14.5	13.9	12.1	9.69
3.0	6.89	6.58	5.79	8.03	10.5	12.3	13.4	14.1	14.4	14.3	14.3	14.1	13.5	12.8	11.5	9.27
1.0	5.49	5.20	4.63	6.04	7.70	10.1	11.5	12.0	12.2	12.2	12.1	11.8	11.4	10.8	9.86	8.45

USI's LITE*PRO V2.27E Point-By-Point Numeric Output 17:46 27-Jan-95
 PROJECT: 63-410 AREA: ALCOVE 10 GRID: Ceiling
 Values are FC, SCALE: 1 IN= 4.0FT, HORZ GRID (U), HORZ CALC, Z= 2.5
 Computed in accordance with IES recommendations

+ MIN=7.32 MAX=10.6 AVE=9.13 AVE/MIN= 1.25 MAX/MIN= 1.44

T4 <2> = B1630B PRESCOLITE CFS8-472-SL8, (2) F9TT/27K, LLF= 0.62

Y-AXIS

11.0	+	+
	7.44	7.32
9.0	+	+
	9.53	9.43
7.0	+	+
	10.5	10.3
5.0	+	+
	10.6	10.4
3.0	+	+
	9.61	9.52
1.0	+	+
	7.50	7.41

1.0

3.0

X-AXIS

USI's LITE*PRO U2.27E Point-By-Point Numeric Output 17:52 27-Jan-95
 PROJECT: 63-410 AREA: OPEN AREA 2 GRID: Ceiling
 Values are FC, SCALE: 1 IN= 4.0FT, HORZ GRID (U), HORZ CALC, Z= 2.5
 Computed in accordance with IES recommendations

+ MIN=11.2 MAX=24.3 AVE=17.2 AVE/MIN= 1.53 MAX/MIN= 2.16

R <2> = K8948A COLUMBIA R0140-A, <1> F40CW, LLF= 0.68

Y-AXIS

9.0	+	+	+	+	+	+	+
	11.4	13.9	15.0	13.9	11.2		
7.0	+	+	+	+	+	+	+
	16.0	20.4	22.1	20.2	15.8		
5.0	<div style="border: 1px solid black; padding: 2px; display: inline-block;"> F → P → F → P → F → P → F → </div>						
	17.6	22.5	24.3	22.4	17.4		
3.0	+	+	+	+	+	+	+
	16.3	20.9	22.6	20.8	16.1		
1.0	+	+	+	+	+	+	+
	11.9	14.7	15.9	14.6	11.8		

1.0 3.0 5.0 7.0 9.0
 X-AXIS

USI's LITE*PRO U2.27E Point-By-Point Numeric Output 14:44 15-Mar-95
 PROJECT: 63-4104 AREA: OPEN AREA 2-N GRID: Ceiling
 Values are FC, SCALE: 1 IN= 4.0FT, HCRZ GRID (U), HCRZ CALC, Z= 2.5
 Computed in accordance with IES recommendations

+ MIN=11.7 MAX=20.2 AVE=15.4 AVE/MIN= 1.32 MAX/MIN= 1.73

I8 <2> = K8959 COLUMBIA CH140, <1> F032/35K, LLF= 0.72

Y-AXIS

9.0	+	+	+	+	+
	11.8	14.0	14.9	13.9	11.7
7.0	+	+	+	+	+
	14.0	17.2	18.4	17.1	13.8
5.0	+	+	+	+	+
	15.1	13.9	20.2	18.8	14.9
3.0	+	+	+	+	+
	14.2	17.5	18.7	17.4	14.0
1.0	+	+	+	+	+
	12.1	14.4	15.3	14.3	12.0

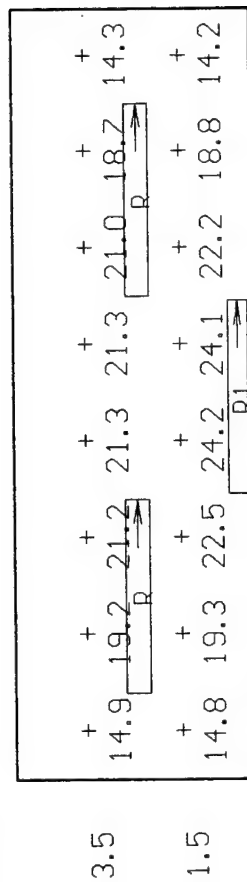
1.0 3.0 5.0 7.0 9.0
 X-AXIS

USI's LITE*PRO V2.27E Point-By-Point Numeric Output 17:56 27-Jan-95
 PROJECT: 63-410 AREA: RESTROOM 5 GRID: Ceiling
 Values are FC, SCALE: 1 IN= 4.0FT, HORZ GRID (U), HORZ CALC, Z= 2.5
 Computed in accordance with IES recommendations

+ MIN=14.2 MAX=24.2 AVE=19.5 AVE/MIN= 1.37 MAX/MIN= 1.71

R <2> = K8948A COLUMBIA R0140-A, <1> F40CW, LLF= 0.68
 R1 <1> = K8956 COLUMBIA AD140-A, <1> F40CW/WM, LLF= 0.68

Y-AXIS



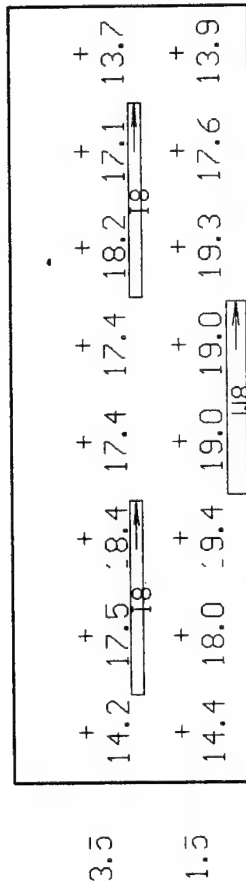
1.0 5.0 7.0 9.0 11.0 13.0 15.0
 X-AXIS

USI's LITE*PRO V2.27E Point-By-Point Numeric Output 14:56 15-Mar-95
 PROJECT: 63-410A AREA: RESTROOM 5-N 3RID: Ceiling
 Values are FC, SCALE: IN= 4.0FT, HORZ GRID (U), HORZ CALC, Z= 2.5
 Computed in accordance with IES recommendations

+ MIN=13.7 MAX=19.4 AVE=17.2 AVE/MIN= 1.25 MAX/MIN= 1.42

I8 <2> = K8959 COLUMBIA CH140, <1> F032/35K, LLF= 0.72
 W8 <1> = K8958 COLUMBIA W140-A, <1> F032/35K, LLF= 0.58

Y-AXIS



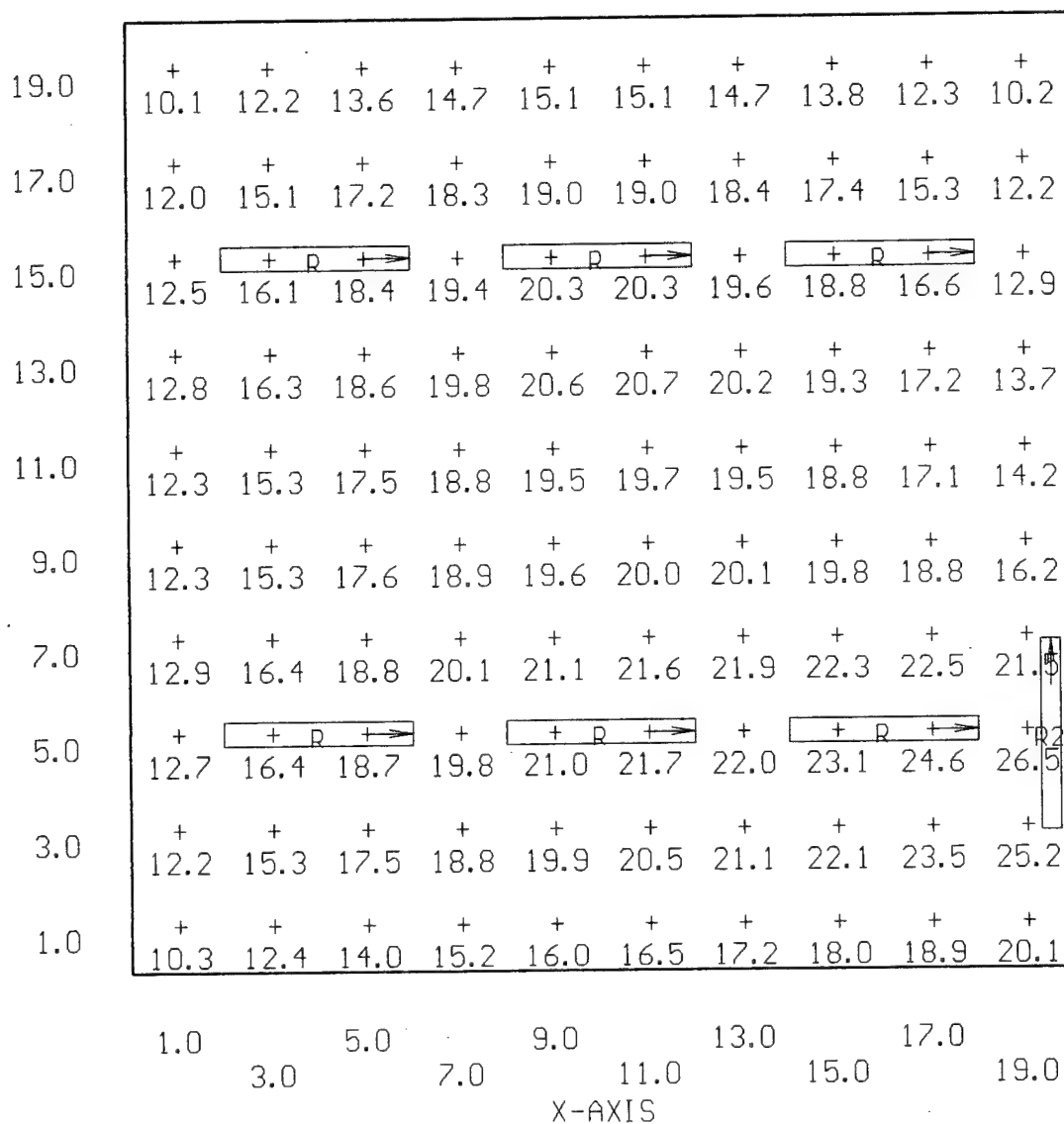
1.0 3.0 5.0 7.0 9.0 11.0 13.0 15.0
 X-AXIS

USI's LITE*PRO V2.27E Point-By-Point Numeric Output 09:27 30-Jan-95
 PROJECT: 63-410 AREA: WOMENS LOCKERS GRID: Ceiling
 Values are FC, SCALE: 1 IN= 4.0FT, HORZ GRID (U), HORZ CALC, Z= 2.5
 Computed in accordance with IES recommendations

+ MIN=10.1 MAX=26.5 AVE=17.6 AVE/MIN= 1.74 MAX/MIN= 2.62

R <6> = K8948A COLUMBIA R0140-A, (1) F40CW, LLF= 0.68
 R2 <1> = K8958 COLUMBIA W140-A, (1) F40CW, LLF= 0.60

Y-AXIS

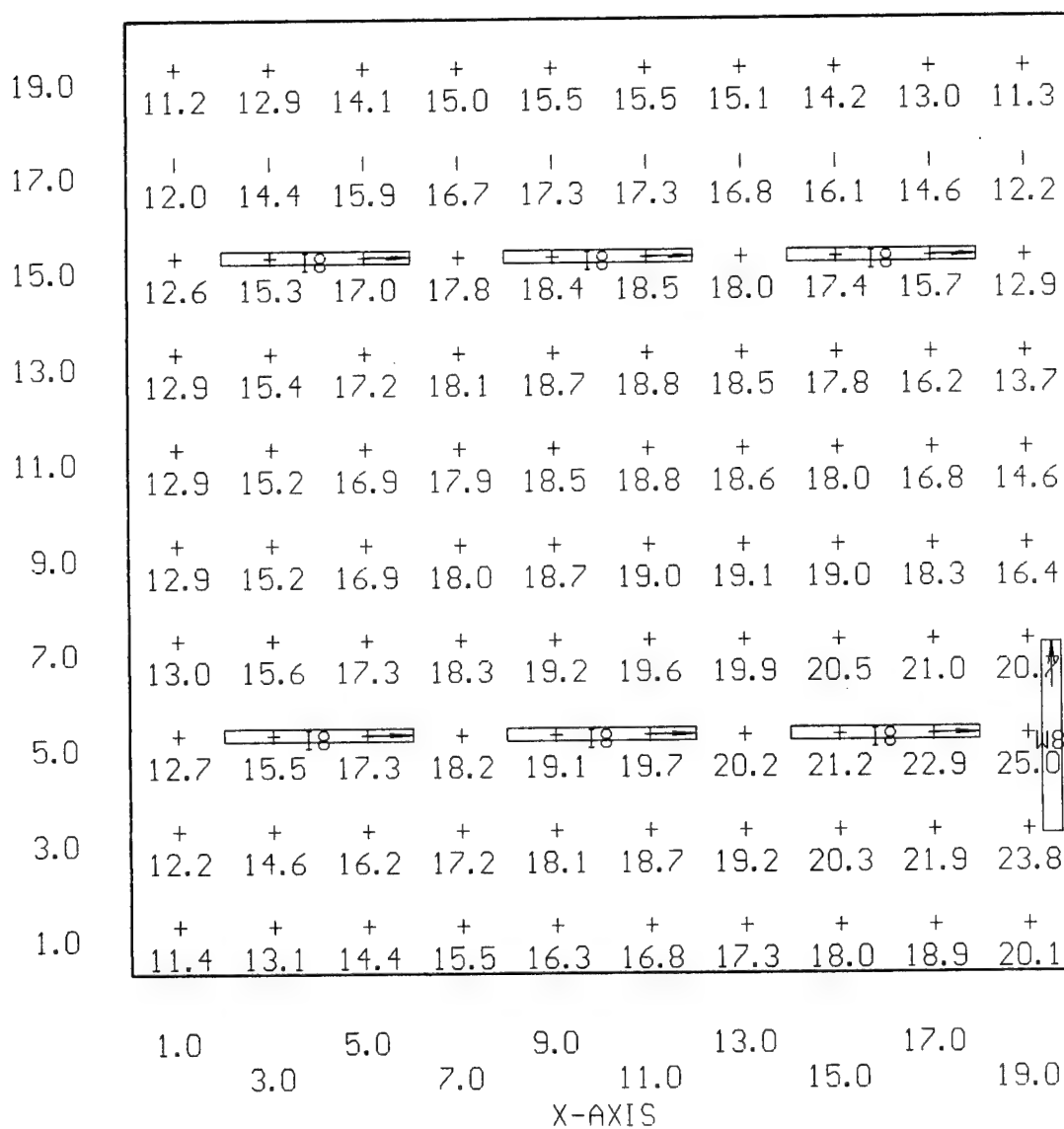


USI's LITE*PRO V2.27E Point-By-Point Numeric Output 14:59 15-Mar-95
 PROJECT: 63-410A AREA: WOMENS LOCKRS-N GRID: Ceiling
 Values are FC, SCALE: 1 IN= 4.0FT, HORZ GRID (U), HORZ CALC, Z= 2.5
 Computed in accordance with IES recommendations

+ MIN=11.2 MAX=25.0 AVE=16.8 AVE/MIN= 1.50 MAX/MIN= 2.23

I8 <6> = K8959 COLUMBIA CH140, (1) F032/35K, LLF= 0.72
 W8 <1> = K8958 COLUMBIA W140-A, (1) F032/35K, LLF= 0.58

Y-AXIS

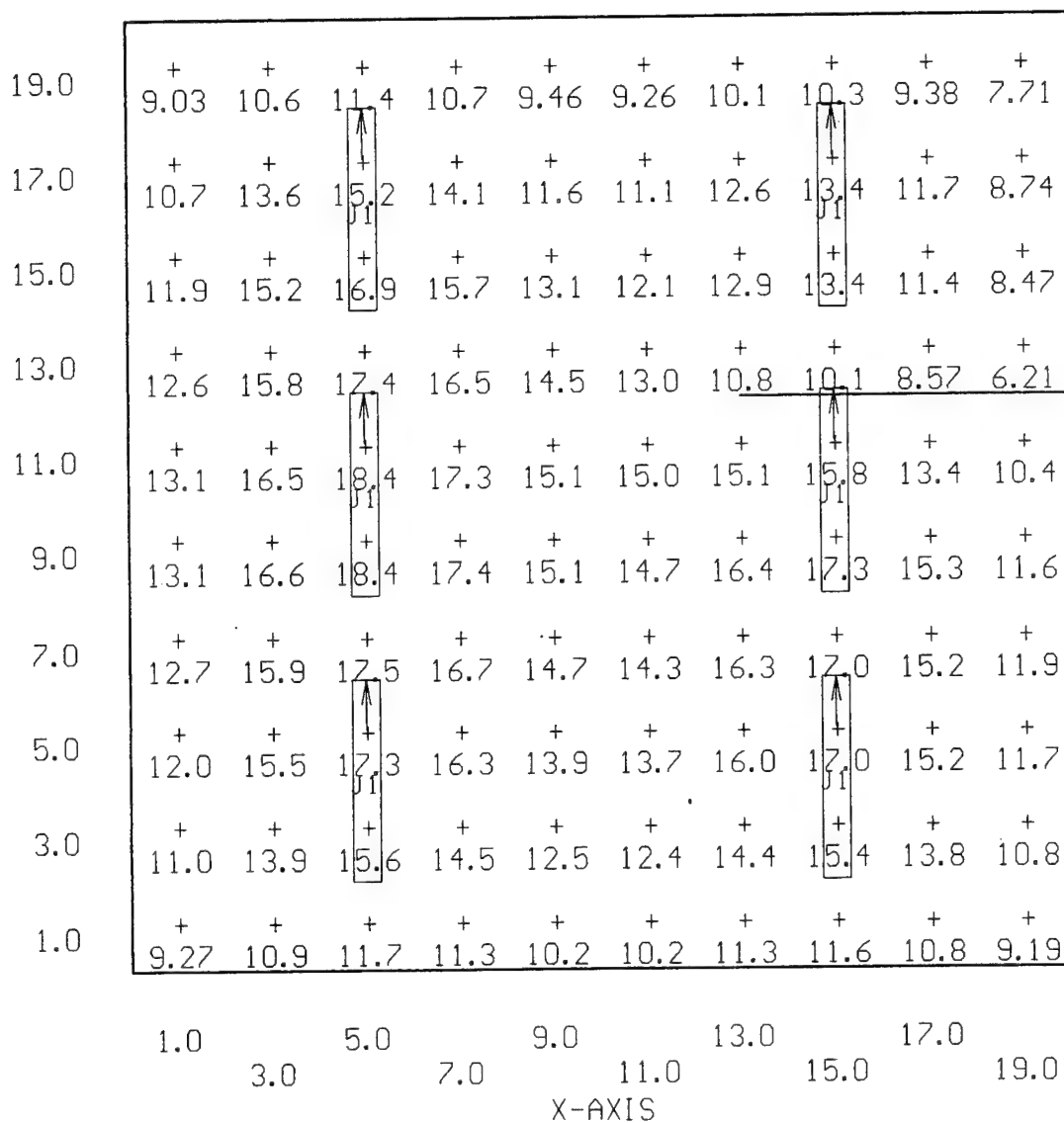


USI's LITE*PRO V2.27E Point-By-Point Numeric Output 09:40 30-Jan-95
 PROJECT: 63-410 AREA: WOMENS SHOWERS GRID: Ceiling
 Values are FC, SCALE: 1 IN= 4.0FT, HORZ GRID (U), HORZ CALC, Z= 2.5
 Computed in accordance with IES recommendations

+ MIN=6.21 MAX=18.4 AVE=13.2 AVE/MIN= 2.13 MAX/MIN= 2.96

J1 <6> = K9798X COLUMBIA LUN140-WL, <1> F40CW, LLF= 0.68

Y-AXIS

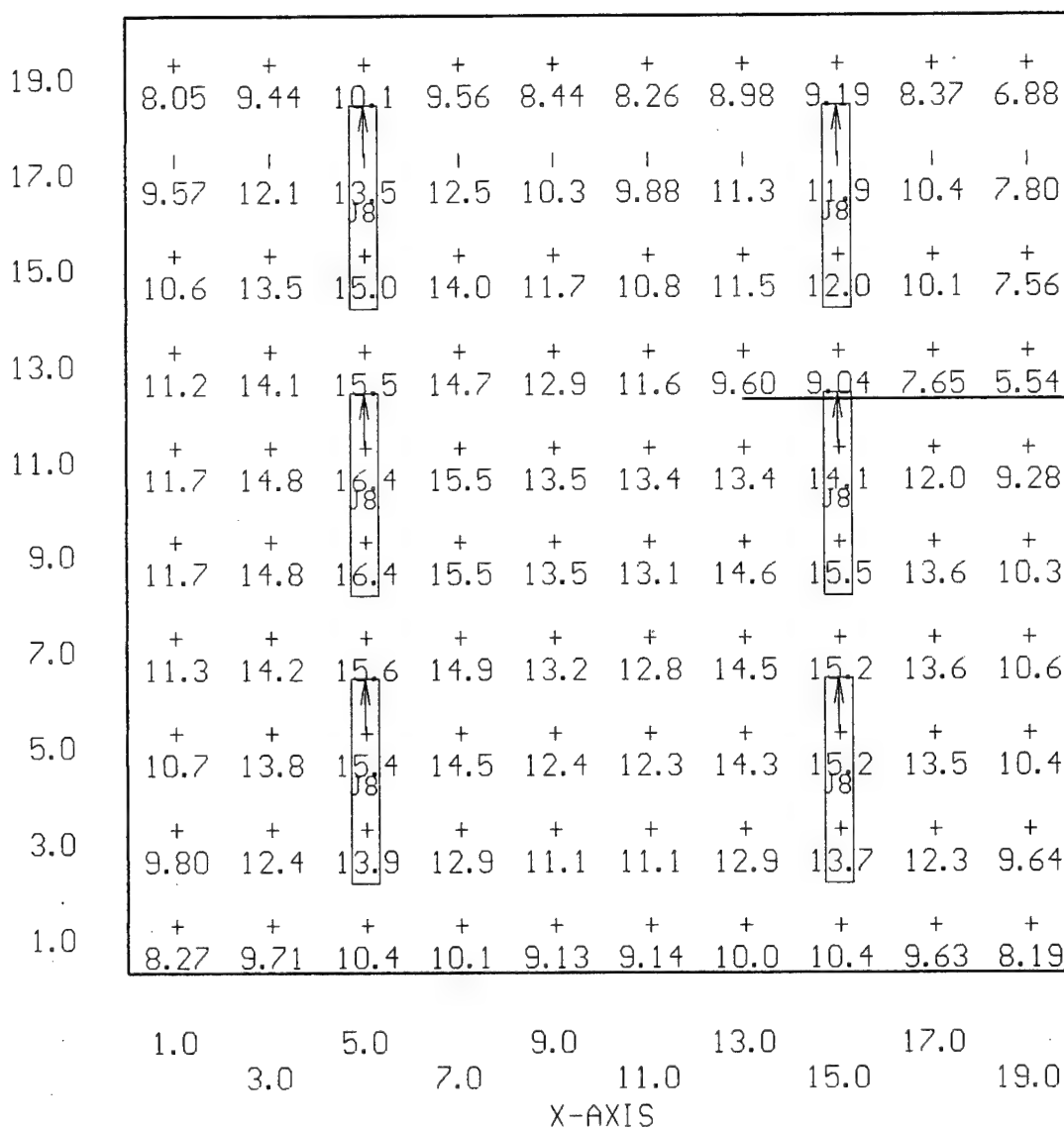


USI's LITE*PRO V2.27E Point-By-Point Numeric Output 15:02 15-Mar-95
 PROJECT: 63-410A AREA: WOMENS SHWERS-N GRID: Ceiling
 Values are FC, SCALE: 1 IN= 4.0FT, HORZ GRID (U), HORZ CALC, Z= 2.5
 Computed in accordance with IES recommendations

+ MIN=5.54 MAX=16.4 AVE=11.8 AVE/MIN= 2.13 MAX/MIN= 2.96

J8 <6> = K9798 COLUMBIA LUN140-DMR, <1> F032/35K, LLF= 0.66

Y-AXIS



US1's LITE*PRO V2.27E Point-By-Point Numeric Output 09:51 30-Jan-95
PROJECT: 63-410 AREA: WOMENS TOILET GRID: Ceiling
Values are FC, SCALE: 1 IN= 4.0FT, HORZ GRID (U), HORZ CALC, Z= 2.5
Computed in accordance with IES recommendations

+ MIN=2.99	MAX=33.0	AVE=18.8	AVE/MIN=	6.29	MAX/MIN=	11.03
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R <3> = K8948A COLUMBIA R0140-A, <1> F40CW, LLF= 0.68
R2 <1> = K8958 COLUMBIA W140-A, <1> F40CW, LLF= 0.60

Y-AXIS

9.0	$\begin{array}{ccccccc} + & + & + & + & + & + & + \\ 3.31 & 6.65 & 14.5 & \boxed{22.3} & 22.3 & 14.5 & 6.64 & 3.30 \end{array}$
7.0	$\begin{array}{ccccccc} + & + & + & + & + & + & + \\ 2.99 & 6.63 & 16.2 & 24.7 & 24.7 & 16.2 & 6.88 & 2.99 \end{array}$
5.0	$\begin{array}{ccccccc} + & + & + & + & + & + & + \\ 15.2 & 19.5 & 26.0 & 26.9 & 27.0 & 26.0 & 19.5 & 15.1 \end{array}$
3.0	$\begin{array}{ccccccc} + & + & + & + & + & + & + \\ 16.3 & 22.2 & 26.9 & \boxed{28.4} & 28.4 & 27.0 & 22.1 & 16.1 \end{array}$
1.0	$\begin{array}{ccccccc} + & + & + & + & + & + & + \\ 15.8 & 21.3 & 27.0 & \boxed{32.9} & 33.0 & 27.1 & 21.3 & 15.7 \end{array}$

X-AXIS

USI's LITE*PRO V2.27E Point-By-Point Numeric Output 15:35 15-Mar-95
 PROJECT: 63-410A AREA: WOMENS TOILET-N GRID: Ceiling
 Values are FC, SCALE: IN= 4.0FT, HORZ GRID (U), HORZ CALC, Z= 2.5
 Computed in accordance with IES recommendations

+ MIN=2.90 MAX=30.5 AVE=16.9 AVE/MIN= 5.85 MAX/MIN= 10.53

I8 <3> = K8959 COLUMBIA CH140, <1> F032/35K, LLF= 0.72
 W8 <1> = K8958 COLUMBIA W140-A, <1> F032/35K, LLF= 0.58

Y-AXIS

9.0	+	3.37	6.03	+	3.1	+	20.3	+	20.3	+	13.0	6.01	3.36
7.0	+	2.90	5.88	+	3.8	+	21.1	+	21.1	+	13.8	6.18	2.90
5.0	+	13.5	17.1	+	22.4	+	23.0	+	23.0	+	22.5	17.1	13.4
3.0	+	14.9	20.1	+	24.6	+	25.9	+	25.9	+	24.6	20.1	14.8
1.0	+	15.1	20.0	+	25.1	+	25.1	+	25.1	+	25.2	20.0	15.0

1.0 3.0 5.0 7.0 9.0 11.0 13.0 15.0
 X-AXIS

USI's LITE*PRO V2.27E Point-By-Point Numeric Output 09:55 30-Jan-95
 PROJECT: 63-410 AREA: TOILET ALCOVE GRID: Ceiling
 Values are FC, SCALE: 1 IN= 4.0FT, HORZ GRID (U), HORZ CALC, Z= 2.5
 Computed in accordance with IES recommendations

+ MIN=8.63 MAX=16.0 AVE=11.8 AVE/MIN= 1.36 MAX/MIN= 1.85

R <1> = K8948A COLUMBIA R0140-A, <1> F40CW, LLF= 0.68

Y-AXIS

5.0	+	8.63	+	12.5	+	14.7	+	12.6	+	8.82
3.0	+	9.06	+	13.5	+	16.0	+	13.7	+	9.26
1.0	+	8.72	+	12.6	+	14.9	+	12.8	+	8.91

1.0 3.0 5.0 7.0 9.0

X-AXIS

USI's LITE*PR0 V2.27E Point-By-Point Numeric Output 15:07 15-Mar-95
 PROJECT: 63-4104 AREA: TOILET ALCOJE-N GRID: Ceiling
 Values are FC, SCALE: 1 IN= 4.0FT, HORZ GRID (U), HCRZ CALC, Z= 2.5
 Computed in accordance with IES recommendations

+ MIN=7.74 MAX=13.8 AVE=10.2 AVE/MIN= 1.32 MAX/MIN= 1.78

I8 <1> = K8959 COLUMBIA CH140, <1> F032/35K, LLF= 0.72

Y-AXIS

5.0	+	7.74	+	10.6	+	12.4	+	10.8	+	7.88	+
3.0	+	8.20	+	11.8	+	13.8	+	11.9	+	8.36	+
1.0	+	7.76	+	10.7	+	12.5	+	10.9	+	7.91	+

1.0 3.0 5.0 7.0 9.0
 X-AXIS

USI's LITE*PRO V2.27E Point-By-Point Numeric Output 10:07 30-Jan-95
 PROJECT: 63-410 AREA: ENTRANCE ALCOVE GRID: Ceiling
 Values are FC, SCALE: 1 IN= 4.0FT, HORZ GRID (U), HORZ CALC, Z= 2.5
 Computed in accordance with IES recommendations

+ MIN=7.67 MAX=9.09 AVE=8.20 AVE/MIN= 1.07 MAX/MIN= 1.18

T4 <1> = B1630B PRESCOLITE CFS8-472-SL8, <2> F9TT/27K, LLF= 0.62

Y-AXIS

5.0	+	+
	7.67	7.68
3.0	+	+
	9.08	9.09
1.0	+	+
	7.83	7.85

1.0 3.0
 X-AXIS

USI's LITE*PRO V2.27E Point-By-Point Numeric Output 10:41 30-Jan-95
 PROJECT: 63-410 AREA: ICE MACHINE GRID: Ceiling
 Values are FC, SCALE: 1 IN= 4.0FT, HORZ GRID (U), HORZ CALC, Z= 2.5
 Computed in accordance with IES recommendations

+ MIN=11.8 MAX=23.2 AVE=17.7 AVE/MIN= 1.50 MAX/MIN= 1.97

R <2> = K8948A COLUMBIA R0140-A, <1> F40CW, LLF= 0.68
 T4 <1> = B1630B PRESCOLITE CFS8-472-SL8, <2> F9TT/27K, LLF= 0.62

Y-AXIS

9.0	+	12.1	+	14.9	+	17.6	+	14.6	+	11.8
7.0	+	15.7	+	19.4	+	18.8	+	18.3	+	14.3
5.0	+	19.0	+	22.8	+	21.5	+	20.2	+	15.6
3.0	+	19.6	+	23.2	+	22.4	+	19.6	+	14.8
1.0	+	17.7	+	20.2	+	19.1	+	16.4	+	12.5

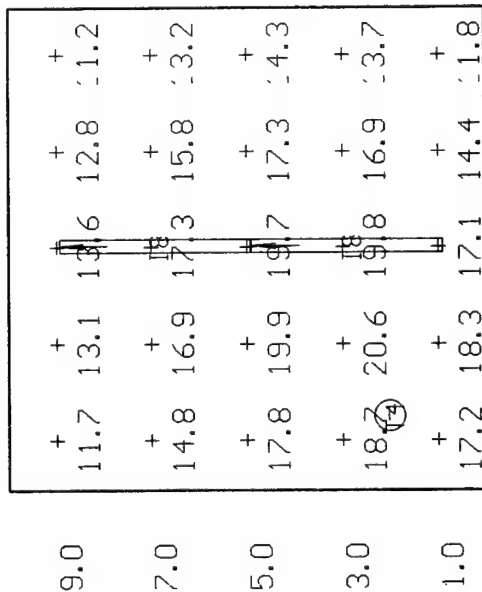
1.0 3.0 5.0 7.0 9.0
 X-AXIS

USI's LITE*PRO V2.27E Point-By-Point Numeric Output 15:09 15-Mar-95
 PROJECT: 63-410A AREA: ICE MACHINE-N GRID: Ceiling
 Values are FC, SCALE: 1 IN= 4.0FT, HORZ GRID (U), HORZ CALC, Z= 2.5
 Computed in accordance with IES recommendations

+ MIN=11.2 MAX=20.6 AVE=15.9 AVE/MIN= 1.42 MAX/MIN= 1.84

I8 <2> = K8959 COLUMBIA CH140, <1> F032/35K, LLF= 0.72
 T4 <1> = B1630B PRESCOLITE CF58-472-SL8, <2> F9TT/27K, L_F= 0.62

Y-AXIS



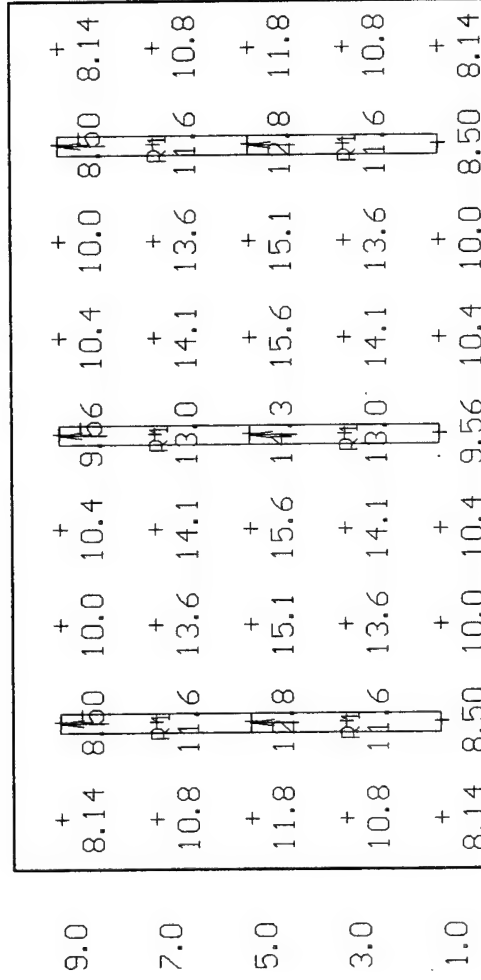
1.0 3.0 5.0 7.0 9.0
 X-AXIS

USI's LITE*PRO V2.27E Point-By-Point Numeric Output 10:48 30-Jan-95
 PROJECT: 63-410 AREA: CLOTHING ISSUE GRID: Ceiling
 Values are FC, SCALE: 1 IN= 4.0FT, HORZ GRID (U), HORZ CALC, Z= 2.5
 Computed in accordance with IES recommendations

+ MIN=8.14 MAX=15.6 AVE=11.5 AVE/MIN= 1.41 MAX/MIN= 1.91

R1 <6> = K8956 COLUMBIA AD140-A, <1> F40CW/WM, LLF= 0.68

Y-AXIS

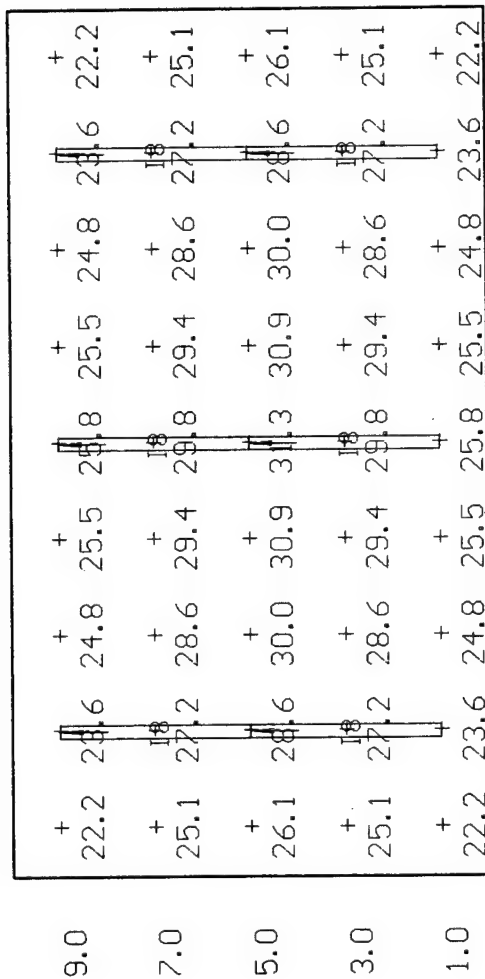


US's LITE*PRO V2.27E Point-By-Point Numeric Output 15:11 15-Mar-95
 PROJECT: 63-410A AREA: CLOT-ING ISSUE-N GRID: Ceiling
 Values are FC, SCALE: 1 IN= 4.0FT, HORZ GRID (L), HORZ CALC, Z= 2.5
 Computed in accordance with IES recommendations

+ MIN=22.2 MAX=31.3 AVE=26.7 AVE/MIN= 1.20 MAX/MIN= 1.41

18 6 = K8959 COLUMBIA CH140, (') F032/35K, LLF= 0.72

Y-AXIS



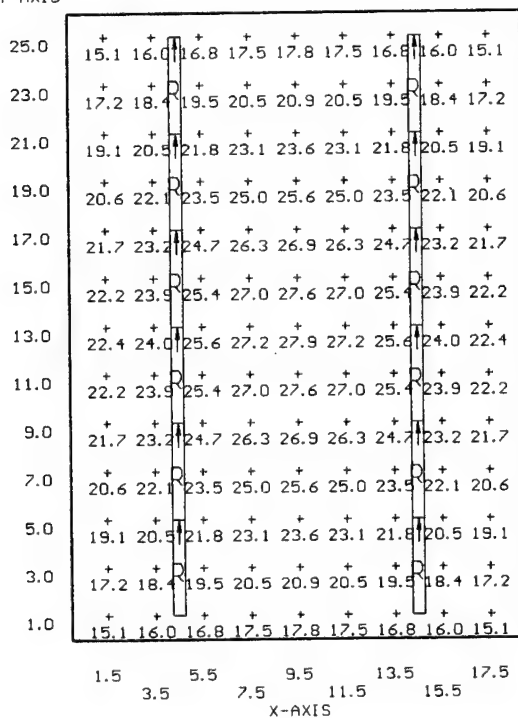
1.0 3.0 5.0 7.0 9.0 11.0 13.0 15.0 17.0
 X-AXIS

USI's LITE*PRO V2.27E Point-By-Point Numeric Output 10:54 30-Jan-95
 PROJECT: 63-410 AREA: MASK STORAGE GRID: Ceiling
 Values are FC, SCALE: 1 IN= 8.0FT, HORZ GRID (U), HORZ CALC, Z= 2.5
 Computed in accordance with IES recommendations

+ MIN=15.1 MAX=27.9 AVE=21.8 AVE/MIN= 1.45 MAX/MIN= 1.85

R <12> = K8948A COLUMBIA R0140-A, <1> F40CW, LLF= 0.68

Y-AXIS

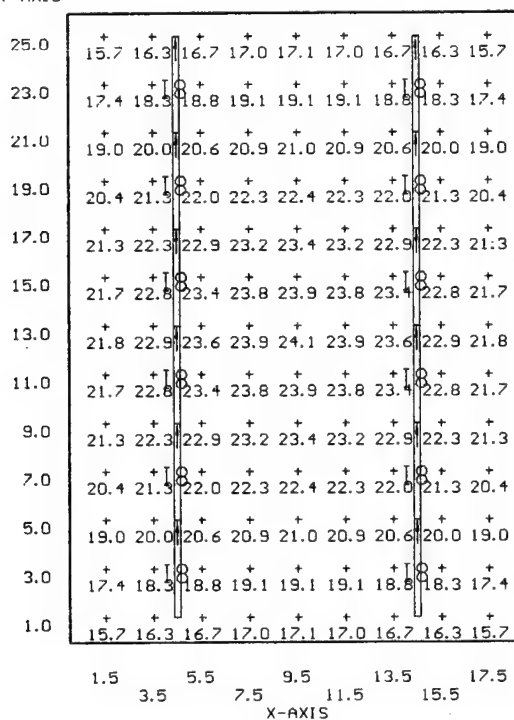


USI's LITE*PRO V2.27E Point-By-Point Numeric Output 15:13 15-Mar-95
 PROJECT: 63-410A AREA: MASK STORAGE-N GRID: Ceiling
 Values are FC, SCALE: 1 IN= 8.0FT, HORZ GRID (U), HORZ CALC, Z= 2.5
 Computed in accordance with IES recommendations

+ MIN=15.7 MAX=24.1 AVE=20.6 AVE/MIN= 1.31 MAX/MIN= 1.53

I8 <12> = K8959 COLUMBIA CH140, <1> F032/35K, LLF= 0.72

Y-AXIS



APPENDIX C
DETAIL COST CALCULATIONS

ECO 1

LIGHTING UPGRADE

CONSTRUCTION COST ESTIMATE

Project: Lighting Upgrade
Location: Pine Bluff Arsenal, AR
Basis: Pre-Design Study
Building: Summary

RS&H No.: 694-1331-001
Date: 23-Mar-95
Estimator: W.T.Todd
Filename: EST-SUMP.WQ1

[illegible]

LEGEND & NOTES

Labor costs based on Means manhour estimates and labor rate (\$27.50/hr).

DGSC Defense General Supply Center, February 1994 Catalog.

GRp### Grainger Catalog No. 385, page ###, x 0.80 for contr price.

MBP### Means Building Construction Cost Data, 1994, page ###.

MEp### Means Electrical Cost Data, 1994, page ###.

NLP### National Lighting Maintenance Supply Corp., 1995, page ###.

OS/SYL Telephone quote from Osram/Sylvania representative.

Information provided by Pine Bluff Arsenal staff.

- (1) Assume lampholder removal takes 5 minutes each.
- (2) Assume 15 minutes for installation of reflector.
- (3) Assume 20 minutes for installation of reflector.
- (4) Assume 25 minutes for installation of reflector.

CONSTRUCTION COST ESTIMATE

Project: Lighting Upgrade
Location: Pine Bluff Arsenal, AR
Basis: Pre-Design Study
Building: Summary

RS&H No.: 694-1331-001
Date: 23-Mar-95
Estimator: W.T.Todd
Filename: EST-SUMP.WQ1

ITEM DESCRIPTION	QUANTITY		LABOR		MATERIAL		TOTAL COST	SOURCE	
	No.	Unit	\$/Unit	Total	\$/Unit	Total		Labor	Material
Fixture Removal									
2x2 UTF or Inc Surf	30	Ea	10.01	300	0.00	0	300	MEp17	N/A
2x4 FI Troffer	83	Ea	14.66	1217	0.00	0	1,217	MEp17	N/A
4' FI Surf Strip	74	Ea	9.79	724	0.00	0	724	MEp18	N/A
4' FI Surf Wrap	191	Ea	13.34	2548	0.00	0	2,548	MEp17	N/A
4' FI Pend Indust	52	Ea	12.57	654	0.00	0	654	MEp18	N/A
8' FI Pend Indust	32	Ea	16.31	522	0.00	0	522	MEp18	N/A
8' FI Surf Strip	155	Ea	11.00	1705	0.00	0	1,705	MEp18	N/A
Low Bay Fixture	151	Ea	22.00	3322	0.00	0	3,322	MEp18	N/A
High Bay Fixture	8	Ea	29.34	235	0.00	0	235	MEp18	N/A
Repair Plas Ceiling	450	SF	0.63	284	0.37	167	451	MBp229	MBp229
Inst. Ceiling Tile	664	SF	0.36	239	0.72	478	717	MBp237	MBp237
Fixture Installation									
11" Srf, 2-26W CFL	9	Ea	27.50	248	79.95	720	968	MEp209	NLp12
High Bay, 1-100W MH	8	Ea	95.65	765	186.27	1490	2,255	MEp208	GRp923
4', 1 Lamp Indust.	2	Ea	36.99	74	52.34	105	179	MEp208	GRp918
4', 2 Lamp Indust.	175	Ea	38.61	6757	53.24	9317	16,074	MEp208	GRp917
4', 2 Lmp Ind w/Refl	18	Ea	38.61	695	58.24	1048	1,743	MEp208	GRp918
4', 1 Lamp Strip	74	Ea	25.88	1915	44.18	3269	5,184	MEp208	GRp915
4', 2 Lamp Strip	2	Ea	27.50	55	47.99	96	151	MEp208	NLp15
2x4, 2 Lamp Surf Mt	1	Ea	35.48	35	76.04	76	111	MEp208	MEp208
2x4, 2 Lamp Troffer	4	Ea	41.50	166	58.99	236	402	MEp207	NLp15
4', 2 Lamp WA	77	Ea	31.43	2420	56.54	4354	6,774	MEp208	NLp15
4', 2 Lamp WA Wet	23	Ea	68.75	1581	84.04	1933	3,514	MEp210	MEp210
4', 2 Lamp WA w/Refl	167	Ea	31.43	5249	75.54	12615	17,864	MEp208	NLp15
4', 4 Lamp WA	2	Ea	41.50	83	71.58	143	226	MEp208	NLp15
8', 2 Lamp Indust.	32	Ea	50.00	1600	84.44	2702	4,302	MEp208	GRp917
Fixture Upgrades									
Remove Incand Lamps	50	Ea	1.38	69	0.00	0	69	MEp215	N/A
Install Integral CF									
15W w/ Elec Bal	6	Ea	1.38	8	19.95	120	128	MEp215	NLp9
20W w/ Elec Bal	28	Ea	1.38	39	19.95	559	598	MEp215	NLp9
23W w/ Elec Bal	10	Ea	1.38	14	19.95	200	214	MEp215	NLp9
28W w/ Mag Bal	6	Ea	1.38	8	29.95	180	188	MEp215	NLp10
Remove Fluor Lamps	8776	Ea	1.83	16060	0.00	0	16,060	MEp13	N/A
Remove Ballasts	4475	Ea	11.00	49225	0.00	0	49,225	MEp211	N/A
Remove Lampholders	3369	Ea	2.29	7715	0.00	0	7,715	(1)	N/A
Install T8 Lamps									
F32T8/TL70/35K	5398	Ea	1.83	9878	2.02	10904	20,782	MEp13	DGSC
F96T8/TL70/35K	1040	Ea	1.83	1903	6.40	6656	8,559	MEp13	OS/SYL
FB32T8/TL70/35K	26	Ea	1.83	48	9.34	243	291	MEp13	DGSC
Install T8 Ballasts									
2-F32T8 Lamps	2404	Ea	11.00	26444	22.50	54090	80,534	MEp211	OS/SYL
3-F32T8 Lamps	49	Ea	11.00	539	23.50	1152	1,691	MEp211	OS/SYL
4-F32T8 Lamps	137	Ea	11.00	1507	24.50	3357	4,864	MEp211	OS/SYL
2-F96T8 Lamps	520	Ea	11.00	5720	35.00	18200	23,920	MEp211	OS/SYL
Install Reflectors									
4' Strp or Indst	14	Ea	6.88	96	7.95	111	207	(2)	NLp18
4' Wrap or Surf	77	Ea	9.17	706	15.90	1224	1,930	(3)	NLp18
2x4 Troffer	131	Ea	11.46	1501	25.35	3321	4,822	(4)	NLp18
Total Bare Costs				154873		139066	\$293,939		

CONSTRUCTION COST ESTIMATE

Project: Lighting Upgrade
 Location: Pine Bluff Arsenal, AR
 Basis: Pre-Design Study
 Building: 10-020

RS&H No.: 694-1331-001
 Date: 23-Mar-95
 Estimator: W.T.Todd
 Filename: EST-SUMP.WQ1

ITEM DESCRIPTION	QUANTITY		LABOR		MATERIAL		TOTAL COST	SOURCE	
	No.	Unit	\$/Unit	Total	\$/Unit	Total		Labor	Material
Fixture Removal									
2x2 UTF or Inc Surf	0	Ea	10.01	0	0.00	0	0	MEp17	N/A
2x4 FI Troffer	0	Ea	14.66	0	0.00	0	0	MEp17	N/A
4' FI Surf Strip	15	Ea	9.79	147	0.00	0	147	MEp18	N/A
4' FI Surf Wrap	2	Ea	13.34	27	0.00	0	27	MEp17	N/A
4' FI Pend Indust	0	Ea	12.57	0	0.00	0	0	MEp18	N/A
8' FI Pend Indust	0	Ea	16.31	0	0.00	0	0	MEp18	N/A
8' FI Surf Strip	152	Ea	11.00	1672	0.00	0	1,672	MEp18	N/A
Low Bay Fixture	0	Ea	22.00	0	0.00	0	0	MEp18	N/A
High Bay Fixture	0	Ea	29.34	0	0.00	0	0	MEp18	N/A
Repair Plas Ceiling	169	SF	0.63	106	0.37	63	169	MBp229	MBp229
Inst. Ceiling Tile	0	SF	0.36	0	0.72	0	0	MBp237	MBp237
Fixture Installation									
11" Srf, 2-26W CFL	5	Ea	27.50	138	79.95	400	538	MEp209	NLp12
High Bay, 1-100W MH	0	Ea	95.65	0	186.27	0	0	MEp208	GRp923
4', 1 Lamp Indust.	0	Ea	36.99	0	52.34	0	0	MEp208	GRp918
4', 2 Lamp Indust.	2	Ea	38.61	77	53.24	106	183	MEp208	GRp917
4', 2 Lmp Ind w/Refl	0	Ea	38.61	0	58.24	0	0	MEp208	GRp918
4', 1 Lamp Strip	1	Ea	25.88	26	44.18	44	70	MEp208	GRp915
4', 2 Lamp Strip	0	Ea	27.50	0	47.99	0	0	MEp208	NLp15
2x4, 2 Lamp Surf Mt	0	Ea	35.48	0	76.04	0	0	MEp208	MEp208
2x4, 2 Lamp Troffer	0	Ea	41.50	0	58.99	0	0	MEp207	NLp15
4', 2 Lamp WA	19	Ea	31.43	597	56.54	1074	1,671	MEp208	NLp15
4', 2 Lamp WA Wet	0	Ea	68.75	0	84.04	0	0	MEp210	MEp210
4', 2 Lamp WA w/Refl	122	Ea	31.43	3834	75.54	9216	13,050	MEp208	NLp15
4', 4 Lamp WA	0	Ea	41.50	0	71.58	0	0	MEp208	NLp15
8', 2 Lamp Indust.	0	Ea	50.00	0	84.44	0	0	MEp208	GRp917
Fixture Upgrades									
Remove Incand Lamps	0	Ea	1.38	0	0.00	0	0	MEp215	N/A
Install Integral CF									
15W w/ Elec Bal	0	Ea	1.38	0	19.95	0	0	MEp215	NLp9
20W w/ Elec Bal	0	Ea	1.38	0	19.95	0	0	MEp215	NLp9
23W w/ Elec Bal	0	Ea	1.38	0	19.95	0	0	MEp215	NLp9
28W w/ Mag Bal	0	Ea	1.38	0	29.95	0	0	MEp215	NLp10
Remove Fluor Lamps	164	Ea	1.83	300	0.00	0	300	MEp13	N/A
Remove Ballasts	84	Ea	11.00	924	0.00	0	924	MEp211	N/A
Remove Lampholders	88	Ea	2.29	202	0.00	0	202	(1)	N/A
Install T8 Lamps									
F32T8/TL70/35K	80	Ea	1.83	146	2.02	162	308	MEp13	DGSC
F96T8/TL70/35K	8	Ea	1.83	15	6.40	51	66	MEp13	OS/SYL
FB32T8/TL70/35K	0	Ea	1.83	0	9.34	0	0	MEp13	DGSC
Install T8 Ballasts									
2-F32T8 Lamps	40	Ea	11.00	440	22.50	900	1,340	MEp211	OS/SYL
3-F32T8 Lamps	0	Ea	11.00	0	23.50	0	0	MEp211	OS/SYL
4-F32T8 Lamps	0	Ea	11.00	0	24.50	0	0	MEp211	OS/SYL
2-F96T8 Lamps	4	Ea	11.00	44	35.00	140	184	MEp211	OS/SYL
Install Reflectors									
4' Strp or Indst	0	Ea	6.88	0	7.95	0	0	(2)	NLp18
4' Wrap or Surf	36	Ea	9.17	330	15.90	572	902	(3)	NLp18
2x4 Troffer	4	Ea	11.46	46	25.35	101	147	(4)	NLp18
Total Bare Costs				9071		12829	\$21,900		

CONSTRUCTION COST ESTIMATE

Project: Lighting Upgrade
Location: Pine Bluff Arsenal, AR
Basis: Pre-Design Study
Building: 10-020

RS&H No.: 694-1331-001
Date: 23-Mar-95
Estimator: W.T.Todd
Filename: EST-SUMP.WQ1

[illegible]

LEGEND & NOTES

Labor costs based on Means manhour estimates and labor rate (\$27.50/hr).

DGSC Defense General Supply Center, February 1994 Catalog.

GRp### Grainger Catalog No. 385, page ###, x 0.80 for contr price.

MBp### Means Building Construction Cost Data, 1994, page ###.

MEp### Means Electrical Cost Data, 1994, page ###.

NLP### National Lighting Maintenance Supply Corp., 1995, page ###.

OS/SYL Telephone quote from Osram/Sylvania representative.

OS/STL Telephone quote from: Corbin, Eugene
PBA Information provided by Pine Bluff Arsenal staff.

- (1) Assume lampholder removal takes 5 minutes each.
- (2) Assume 15 minutes for installation of reflector.
- (3) Assume 20 minutes for installation of reflector.
- (4) Assume 25 minutes for installation of reflector.

CONSTRUCTION COST ESTIMATE

Project: Lighting Upgrade
 Location: Pine Bluff Arsenal, AR
 Basis: Pre-Design Study
 Building: 10-030

RS&H No.: 694-1331-001
 Date: 23-Mar-95
 Estimator: W.T.Todd
 Filename: EST-SUMP.WQ1

ITEM DESCRIPTION	QUANTITY		LABOR		MATERIAL		TOTAL COST	SOURCE	
	No.	Unit	\$/Unit	Total	\$/Unit	Total		Labor	Material
Fixture Removal									
2x2 UTF or Inc Surf	1	Ea	10.01	10	0.00	0	10	MEp17	N/A
2x4 FI Troffer	0	Ea	14.66	0	0.00	0	0	MEp17	N/A
4' FI Surf Strip	0	Ea	9.79	0	0.00	0	0	MEp18	N/A
4' FI Surf Wrap	3	Ea	13.34	40	0.00	0	40	MEp17	N/A
4' FI Pend Indust	0	Ea	12.57	0	0.00	0	0	MEp18	N/A
8' FI Pend Indust	0	Ea	16.31	0	0.00	0	0	MEp18	N/A
8' FI Surf Strip	0	Ea	11.00	0	0.00	0	0	MEp18	N/A
Low Bay Fixture	0	Ea	22.00	0	0.00	0	0	MEp18	N/A
High Bay Fixture	0	Ea	29.34	0	0.00	0	0	MEp18	N/A
Repair Plas Ceiling	4	SF	0.63	3	0.37	1	4	MBp229	MBp229
Inst. Ceiling Tile	0	SF	0.36	0	0.72	0	0	MBp237	MBp237
Fixture Installation									
11" Srf, 2-26W CFL	0	Ea	27.50	0	79.95	0	0	MEp209	NLp12
High Bay, 1-100W MH	0	Ea	95.65	0	186.27	0	0	MEp208	GRp923
4', 1 Lamp Indust.	0	Ea	36.99	0	52.34	0	0	MEp208	GRp918
4', 2 Lamp Indust.	0	Ea	38.61	0	53.24	0	0	MEp208	GRp917
4', 2 Lmp Ind w/Refl	0	Ea	38.61	0	58.24	0	0	MEp208	GRp918
4', 1 Lamp Strip	0	Ea	25.88	0	44.18	0	0	MEp208	GRp915
4', 2 Lamp Strip	2	Ea	27.50	55	47.99	96	151	MEp208	NLp15
2x4, 2 Lamp Surf Mt	0	Ea	35.48	0	76.04	0	0	MEp208	MEp208
2x4, 2 Lamp Troffer	0	Ea	41.50	0	58.99	0	0	MEp207	NLp15
4', 2 Lamp WA	0	Ea	31.43	0	56.54	0	0	MEp208	NLp15
4', 2 Lamp WA Wet	0	Ea	68.75	0	84.04	0	0	MEp210	MEp210
4', 2 Lamp WA w/Refl	0	Ea	31.43	0	75.54	0	0	MEp208	NLp15
4', 4 Lamp WA	0	Ea	41.50	0	71.58	0	0	MEp208	NLp15
8', 2 Lamp Indust.	0	Ea	50.00	0	84.44	0	0	MEp208	GRp917
Fixture Upgrades									
Remove Incand Lamps	0	Ea	1.38	0	0.00	0	0	MEp215	N/A
Install Integral CF									
15W w/ Elec Bal	0	Ea	1.38	0	19.95	0	0	MEp215	NLp9
20W w/ Elec Bal	0	Ea	1.38	0	19.95	0	0	MEp215	NLp9
23W w/ Elec Bal	0	Ea	1.38	0	19.95	0	0	MEp215	NLp9
28W w/ Mag Bal	0	Ea	1.38	0	29.95	0	0	MEp215	NLp10
Remove Fluor Lamps	224	Ea	1.83	410	0.00	0	410	MEp13	N/A
Remove Ballasts	112	Ea	11.00	1232	0.00	0	1,232	MEp211	N/A
Remove Lampholders	94	Ea	2.29	215	0.00	0	215	(1)	N/A
Install T8 Lamps									
F32T8/TL70/35K	147	Ea	1.83	269	2.02	297	566	MEp13	DGSC
F96T8/TL70/35K	0	Ea	1.83	0	6.40	0	0	MEp13	OS/SYL
FB32T8/TL70/35K	8	Ea	1.83	15	9.34	75	90	MEp13	DGSC
Install T8 Ballasts									
2-F32T8 Lamps	46	Ea	11.00	506	22.50	1035	1,541	MEp211	OS/SYL
3-F32T8 Lamps	13	Ea	11.00	143	23.50	306	449	MEp211	OS/SYL
4-F32T8 Lamps	8	Ea	11.00	88	24.50	196	284	MEp211	OS/SYL
2-F96T8 Lamps	0	Ea	11.00	0	35.00	0	0	MEp211	OS/SYL
Install Reflectors									
4' Strp or Indst	0	Ea	6.88	0	7.95	0	0	(2)	NLp18
4' Wrap or Surf	0	Ea	9.17	0	15.90	0	0	(3)	NLp18
2x4 Troffer	21	Ea	11.46	241	25.35	532	773	(4)	NLp18
				-----		-----	-----		
Total Bare Costs				3227		2538	\$5,765		

CONSTRUCTION COST ESTIMATE

Project: Lighting Upgrade
Location: Pine Bluff Arsenal, AR
Basis: Pre-Design Study
Building: 10-030

RS&H No.: 694-1331-001
Date: 23-Mar-95
Estimator: W.T.Todd
Filename: EST-SUMP.WQ1

[illegible]

LEGEND & NOTES

Labor costs based on Means manhour estimates and labor rate (\$27.50/hr).

DGSC Defense General Supply Center, February 1994 Catalog.

GRp### Grainger Catalog No. 385, page ###, x 0.80 for contr price.

MBP### Means Building Construction Cost Data, 1994, page ###.

MEp### Means Electrical Cost Data, 1994, page ###.

NLP### National Lighting Maintenance Supply Corp., 1995, page ###.

OS/SYL Telephone quote from Osram/Sylvania representative.

PBA Information provided by Pine Bluff Arsenal staff.

- (1) Assume lampholder removal takes 5 minutes each.
- (2) Assume 15 minutes for installation of reflector.
- (3) Assume 20 minutes for installation of reflector.
- (4) Assume 25 minutes for installation of reflector.

CONSTRUCTION COST ESTIMATE

Project: Lighting Upgrade
 Location: Pine Bluff Arsenal, AR
 Basis: Pre-Design Study
 Building: 10-050

RS&H No.: 694-1331-001
 Date: 23-Mar-95
 Estimator: W.T.Todd
 Filename: EST-SUMP.WQ1

ITEM DESCRIPTION	QUANTITY		LABOR		MATERIAL		TOTAL COST	SOURCE	
	No.	Unit	\$/Unit	Total	\$/Unit	Total		Labor	Material
Fixture Removal									
2x2 UTF or Inc Surf	0	Ea	10.01	0	0.00	0	0	MEp17	N/A
2x4 FI Troffer	6	Ea	14.66	88	0.00	0	88	MEp17	N/A
4' FI Surf Strip	0	Ea	9.79	0	0.00	0	0	MEp17	N/A
4' FI Surf Wrap	0	Ea	13.34	0	0.00	0	0	MEp17	N/A
4' FI Pend Indust	0	Ea	12.57	0	0.00	0	0	MEp18	N/A
8' FI Pend Indust	0	Ea	16.31	0	0.00	0	0	MEp18	N/A
8' FI Surf Strip	0	Ea	11.00	0	0.00	0	0	MEp18	N/A
Low Bay Fixture	0	Ea	22.00	0	0.00	0	0	MEp18	N/A
High Bay Fixture	0	Ea	29.34	0	0.00	0	0	MEp18	N/A
Repair Plas Ceiling	0	SF	0.63	0	0.37	0	0	MBp229	MBp229
Inst. Ceiling Tile	48	SF	0.36	17	0.72	35	52	MBp237	MBp237
Fixture Installation									
11" Srf, 2-26W CFL	0	Ea	27.50	0	79.95	0	0	MEp209	NLp12
High Bay, 1-100W MH	0	Ea	95.65	0	186.27	0	0	MEp208	GRp923
4', 1 Lamp Indust.	0	Ea	36.99	0	52.34	0	0	MEp208	GRp918
4', 2 Lamp Indust.	0	Ea	38.61	0	53.24	0	0	MEp208	GRp917
4', 2 Lmp Ind w/Refl	0	Ea	38.61	0	58.24	0	0	MEp208	GRp918
4', 1 Lamp Strip	0	Ea	25.88	0	44.18	0	0	MEp208	GRp915
4', 2 Lamp Strip	0	Ea	27.50	0	47.99	0	0	MEp208	NLp15
2x4, 2 Lamp Surf Mt	0	Ea	35.48	0	76.04	0	0	MEp208	MEp208
2x4, 2 Lamp Troffer	0	Ea	41.50	0	58.99	0	0	MEp207	NLp15
4', 2 Lamp WA	4	Ea	31.43	126	56.54	226	352	MEp208	NLp15
4', 2 Lamp WA Wet	0	Ea	68.75	0	84.04	0	0	MEp210	MEp210
4', 2 Lamp WA w/Refl	0	Ea	31.43	0	75.54	0	0	MEp208	NLp15
4', 4 Lamp WA	0	Ea	41.50	0	71.58	0	0	MEp208	NLp15
8', 2 Lamp Indust.	0	Ea	50.00	0	84.44	0	0	MEp208	GRp917
Fixture Upgrades									
Remove Incand Lamps	0	Ea	1.38	0	0.00	0	0	MEp215	N/A
Install Integral CF									
15W w/ Elec Bal	0	Ea	1.38	0	19.95	0	0	MEp215	NLp9
20W w/ Elec Bal	0	Ea	1.38	0	19.95	0	0	MEp215	NLp9
23W w/ Elec Bal	0	Ea	1.38	0	19.95	0	0	MEp215	NLp9
28W w/ Mag Bal	0	Ea	1.38	0	29.95	0	0	MEp215	NLp10
Remove Fluor Lamps	126	Ea	1.83	231	0.00	0	231	MEp13	N/A
Remove Ballasts	63	Ea	11.00	693	0.00	0	693	MEp211	N/A
Remove Lampholders	34	Ea	2.29	78	0.00	0	78	(1)	N/A
Install T8 Lamps									
F32T8/TL70/35K	92	Ea	1.83	168	2.02	186	354	MEp13	DGSC
F96T8/TL70/35K	0	Ea	1.83	0	6.40	0	0	MEp13	OS/SYL
FB32T8/TL70/35K	0	Ea	1.83	0	9.34	0	0	MEp13	DGSC
Install T8 Ballasts									
2-F32T8 Lamps	46	Ea	11.00	506	22.50	1035	1,541	MEp211	OS/SYL
3-F32T8 Lamps	0	Ea	11.00	0	23.50	0	0	MEp211	OS/SYL
4-F32T8 Lamps	0	Ea	11.00	0	24.50	0	0	MEp211	OS/SYL
2-F96T8 Lamps	0	Ea	11.00	0	35.00	0	0	MEp211	OS/SYL
Install Reflectors									
4' Strp or Indst	0	Ea	6.88	0	7.95	0	0	(2)	NLp18
4' Wrap or Surf	0	Ea	9.17	0	15.90	0	0	(3)	NLp18
2x4 Troffer	17	Ea	11.46	195	25.35	431	626	(4)	NLp18
Total Bare Costs				2102		1913	\$4,015		

CONSTRUCTION COST ESTIMATE

Project: Lighting Upgrade
 Location: Pine Bluff Arsenal, AR
 Basis: Pre-Design Study
 Building: 10-050

RS&H No.: 694-1331-001
 Date: 23-Mar-95
 Estimator: W.T.Todd
 Filename: EST-SUMP.WQ1

ITEM DESCRIPTION	QUANTITY		LABOR		MATERIAL		TOTAL COST	SOURCE	
	No.	Unit	\$/Unit	Total	\$/Unit	Total		Labor	Material
Total Bare Costs				2102		1913	\$4,015		
Economy of Scale			-20.0%	-420		0	(420)	MEp360	
Subtotal				1682		1913	3,595		
City Cost Index			-30.1%	-506	-3.5%	-67	(573)	MEp388	MEp388
Subtotal				1176		1846	3,022		
OH & Profit Markups			50.0%	588	10.0%	185	773	MEpIBC	MEp3
Subtotal				1764		2031	3,795		
Sales Taxes				0	6.5%	132	132		PBA
Subtotal				1764		2163	3,927		
Contingency			10.0%	176	10.0%	216	392	MEp4	MEp4
Subtotal				1940		2379	4,319		
Design Fee	6.0%			259		0	259	PBA	
SIOH	6.0%			259		0	259	PBA	
Total Const. Cost				2458		2379	\$4,837		

LEGEND & NOTES

Labor costs based on Means manhour estimates and labor rate (\$27.50/hr).
 DGSC Defense General Supply Center, February 1994 Catalog.
 GRp### Grainger Catalog No. 385, page ###, x 0.80 for contr price.
 MBp### Means Building Construction Cost Data, 1994, page ###.
 MEp### Means Electrical Cost Data, 1994, page ###.
 NLp### National Lighting Maintenance Supply Corp., 1995, page ###.
 OS/SYL Telephone quote from Osram/Sylvania representative.
 PBA Information provided by Pine Bluff Arsenal staff.
 (1) Assume lampholder removal takes 5 minutes each.
 (2) Assume 15 minutes for installation of reflector.
 (3) Assume 20 minutes for installation of reflector.
 (4) Assume 25 minutes for installation of reflector.

CONSTRUCTION COST ESTIMATE

Project: Lighting Upgrade
 Location: Pine Bluff Arsenal, AR
 Basis: Pre-Design Study
 Building: 13-010

RS&H No.: 694-1331-001
 Date: 23-Mar-95
 Estimator: W.T.Todd
 Filename: EST-SUMP.WQ1

ITEM DESCRIPTION	QUANTITY		LABOR		MATERIAL		TOTAL COST	SOURCE	
	No.	Unit	\$/Unit	Total	\$/Unit	Total		Labor	Material
Fixture Removal									
2x2 UTF or Inc Surf	0	Ea	10.01	0	0.00	0	0	MEp17	N/A
2x4 FI Troffer	0	Ea	14.66	0	0.00	0	0	MEp17	N/A
4' FI Surf Strip	0	Ea	9.79	0	0.00	0	0	MEp18	N/A
4' FI Surf Wrap	0	Ea	13.34	0	0.00	0	0	MEp17	N/A
4' FI Pend Indust	0	Ea	12.57	0	0.00	0	0	MEp18	N/A
8' FI Pend Indust	0	Ea	16.31	0	0.00	0	0	MEp18	N/A
8' FI Surf Strip	0	Ea	11.00	0	0.00	0	0	MEp18	N/A
Low Bay Fixture	0	Ea	22.00	0	0.00	0	0	MEp18	N/A
High Bay Fixture	0	Ea	29.34	0	0.00	0	0	MEp18	N/A
Repair Plas Ceiling	0	SF	0.63	0	0.37	0	0	MBp229	MBp229
Inst. Ceiling Tile	0	SF	0.36	0	0.72	0	0	MBp237	MBp237
Fixture Installation									
11" Srf, 2-26W CFL	0	Ea	27.50	0	79.95	0	0	MEp209	NLp12
High Bay, 1-100W MH	0	Ea	95.65	0	186.27	0	0	MEp208	GRp923
4', 1 Lamp Indust.	0	Ea	36.99	0	52.34	0	0	MEp208	GRp918
4', 2 Lamp Indust.	0	Ea	38.61	0	53.24	0	0	MEp208	GRp917
4', 2 Lmp Ind w/Refl	0	Ea	38.61	0	58.24	0	0	MEp208	GRp918
4', 1 Lamp Strip	0	Ea	25.88	0	44.18	0	0	MEp208	GRp915
4', 2 Lamp Strip	0	Ea	27.50	0	47.99	0	0	MEp208	NLp15
2x4, 2 Lamp Surf Mt	0	Ea	35.48	0	76.04	0	0	MEp208	MEp208
2x4, 2 Lamp Troffer	0	Ea	41.50	0	58.99	0	0	MEp207	NLp15
4', 2 Lamp WA	0	Ea	31.43	0	56.54	0	0	MEp208	NLp15
4', 2 Lamp WA Wet	0	Ea	68.75	0	84.04	0	0	MEp210	MEp210
4', 2 Lamp WA w/Refl	0	Ea	31.43	0	75.54	0	0	MEp208	NLp15
4', 4 Lamp WA	0	Ea	41.50	0	71.58	0	0	MEp208	NLp15
8', 2 Lamp Indust.	0	Ea	50.00	0	84.44	0	0	MEp208	GRp917
Fixture Upgrades									
Remove Incand Lamps	0	Ea	1.38	0	0.00	0	0	MEp215	N/A
Install Integral CF									
15W w/ Elec Bal	0	Ea	1.38	0	19.95	0	0	MEp215	NLp9
20W w/ Elec Bal	0	Ea	1.38	0	19.95	0	0	MEp215	NLp9
23W w/ Elec Bal	0	Ea	1.38	0	19.95	0	0	MEp215	NLp9
28W w/ Mag Bal	0	Ea	1.38	0	29.95	0	0	MEp215	NLp10
Remove Fluor Lamps	104	Ea	1.83	190	0.00	0	190	MEp13	N/A
Remove Ballasts	52	Ea	11.00	572	0.00	0	572	MEp211	N/A
Remove Lampholders	48	Ea	2.29	110	0.00	0	110	(1)	N/A
Install T8 Lamps									
F32T8/TL70/35K	56	Ea	1.83	102	2.02	113	215	MEp13	DGSC
F96T8/TL70/35K	0	Ea	1.83	0	6.40	0	0	MEp13	OS/SYL
FB32T8/TL70/35K	0	Ea	1.83	0	9.34	0	0	MEp13	DGSC
Install T8 Ballasts									
2-F32T8 Lamps	28	Ea	11.00	308	22.50	630	938	MEp211	OS/SYL
3-F32T8 Lamps	0	Ea	11.00	0	23.50	0	0	MEp211	OS/SYL
4-F32T8 Lamps	0	Ea	11.00	0	24.50	0	0	MEp211	OS/SYL
2-F96T8 Lamps	0	Ea	11.00	0	35.00	0	0	MEp211	OS/SYL
Install Reflectors									
4' Strp or Indst	0	Ea	6.88	0	7.95	0	0	(2)	NLp18
4' Wrap or Surf	0	Ea	9.17	0	15.90	0	0	(3)	NLp18
2x4 Troffer	2	Ea	11.46	23	25.35	51	74	(4)	NLp18
Total Bare Costs				1305		794	\$2,099		

CONSTRUCTION COST ESTIMATE

Project: Lighting Upgrade
 Location: Pine Bluff Arsenal, AR
 Basis: Pre-Design Study
 Building: 13-010

RS&H No.: 694-1331-001
 Date: 23-Mar-95
 Estimator: W.T.Todd
 Filename: EST-SUMP.WQ1

ITEM DESCRIPTION	QUANTITY		LABOR		MATERIAL		TOTAL COST	SOURCE	
	No.	Unit	\$/Unit	Total	\$/Unit	Total		Labor	Material
Total Bare Costs				1305		794	\$2,099		
Economy of Scale			-20.0%	-261		0	(261)	MEp360	
Subtotal				1044		794	1,838		
City Cost Index			-30.1%	-314	-3.5%	-28	(342)	MEp388	MEp388
Subtotal				730		766	1,496		
OH & Profit Markups			50.0%	365	10.0%	77	442	MEpIBC	MEp3
Subtotal				1095		843	1,938		
Sales Taxes				0	6.5%	55	55		PBA
Subtotal				1095		898	1,993		
Contingency			10.0%	110	10.0%	90	200	MEp4	MEp4
Subtotal				1205		988	2,193		
Design Fee	6.0%			132		0	132	PBA	
SIOH	6.0%			132		0	132	PBA	
Total Const. Cost				1469		988	\$2,457		

LEGEND & NOTES

Labor costs based on Means manhour estimates and labor rate (\$27.50/hr).
 DGSC Defense General Supply Center, February 1994 Catalog.
 GRp### Grainger Catalog No. 385, page ###, x 0.80 for contr price.
 MBp### Means Building Construction Cost Data, 1994, page ###.
 MEp### Means Electrical Cost Data, 1994, page ###.
 NLp### National Lighting Maintenance Supply Corp., 1995, page ###.
 OS/SYL Telephone quote from Osram/Sylvania representative.
 PBA Information provided by Pine Bluff Arsenal staff.
 (1) Assume lampholder removal takes 5 minutes each.
 (2) Assume 15 minutes for installation of reflector.
 (3) Assume 20 minutes for installation of reflector.
 (4) Assume 25 minutes for installation of reflector.

CONSTRUCTION COST ESTIMATE

Project: Lighting Upgrade
 Location: Pine Bluff Arsenal, AR
 Basis: Pre-Design Study
 Building: 13-020

RS&H No.: 694-1331-001
 Date: 23-Mar-95
 Estimator: W.T.Todd
 Filename: EST-SUMP.WQ1

ITEM DESCRIPTION	QUANTITY		LABOR		MATERIAL		TOTAL COST	SOURCE	
	No.	Unit	\$/Unit	Total	\$/Unit	Total		Labor	Material
Fixture Removal									
2x2 UTF or Inc Surf	0	Ea	10.01	0	0.00	0	0	MEp17	N/A
2x4 FI Troffer	0	Ea	14.66	0	0.00	0	0	MEp17	N/A
4' FI Surf Strip	0	Ea	9.79	0	0.00	0	0	MEp18	N/A
4' FI Surf Wrap	10	Ea	13.34	133	0.00	0	133	MEp17	N/A
4' FI Pend Indust	0	Ea	12.57	0	0.00	0	0	MEp18	N/A
8' FI Pend Indust	0	Ea	16.31	0	0.00	0	0	MEp18	N/A
8' FI Surf Strip	0	Ea	11.00	0	0.00	0	0	MEp18	N/A
Low Bay Fixture	0	Ea	22.00	0	0.00	0	0	MEp18	N/A
High Bay Fixture	0	Ea	29.34	0	0.00	0	0	MEp18	N/A
Repair Plas Ceiling	10	SF	0.63	6	0.37	4	10	MBp229	MBp229
Inst. Ceiling Tile	0	SF	0.36	0	0.72	0	0	MBp237	MBp237
Fixture Installation									
11" Srf, 2-26W CFL	0	Ea	27.50	0	79.95	0	0	MEp209	NLp12
High Bay, 1-100W MH	0	Ea	95.65	0	186.27	0	0	MEp208	GRp923
4', 1 Lamp Indust.	0	Ea	36.99	0	52.34	0	0	MEp208	GRp918
4', 2 Lamp Indust.	0	Ea	38.61	0	53.24	0	0	MEp208	GRp917
4', 2 Lmp Ind w/Refl	0	Ea	38.61	0	58.24	0	0	MEp208	GRp918
4', 1 Lamp Strip	0	Ea	25.88	0	44.18	0	0	MEp208	GRp915
4', 2 Lamp Strip	0	Ea	27.50	0	47.99	0	0	MEp208	NLp15
2x4, 2 Lamp Surf Mt	1	Ea	35.48	35	76.04	76	111	MEp208	MEp208
2x4, 2 Lamp Troffer	0	Ea	41.50	0	58.99	0	0	MEp207	NLp15
4', 2 Lamp WA	2	Ea	31.43	63	56.54	113	176	MEp208	NLp15
4', 2 Lamp WA Wet	0	Ea	68.75	0	84.04	0	0	MEp210	MEp210
4', 2 Lamp WA w/Refl	6	Ea	31.43	189	75.54	453	642	MEp208	NLp15
4', 4 Lamp WA	0	Ea	41.50	0	71.58	0	0	MEp208	NLp15
8', 2 Lamp Indust.	0	Ea	50.00	0	84.44	0	0	MEp208	GRp917
Fixture Upgrades									
Remove Incand Lamps	2	Ea	1.38	3	0.00	0	3	MEp215	N/A
Install Integral CF									
15W w/ Elec Bal	0	Ea	1.38	0	19.95	0	0	MEp215	NLp9
20W w/ Elec Bal	2	Ea	1.38	3	19.95	40	43	MEp215	NLp9
23W w/ Elec Bal	0	Ea	1.38	0	19.95	0	0	MEp215	NLp9
28W w/ Mag Bal	0	Ea	1.38	0	29.95	0	0	MEp215	NLp10
Remove Fluor Lamps	90	Ea	1.83	165	0.00	0	165	MEp13	N/A
Remove Ballasts	45	Ea	11.00	495	0.00	0	495	MEp211	N/A
Remove Lampholders	11	Ea	2.29	25	0.00	0	25	(1)	N/A
Install T8 Lamps									
F32T8/TL70/35K	76	Ea	1.83	139	2.02	154	293	MEp13	DGSC
F96T8/TL70/35K	0	Ea	1.83	0	6.40	0	0	MEp13	OS/SYL
FB32T8/TL70/35K	0	Ea	1.83	0	9.34	0	0	MEp13	DGSC
Install T8 Ballasts									
2-F32T8 Lamps	30	Ea	11.00	330	22.50	675	1,005	MEp211	OS/SYL
3-F32T8 Lamps	0	Ea	11.00	0	23.50	0	0	MEp211	OS/SYL
4-F32T8 Lamps	4	Ea	11.00	44	24.50	98	142	MEp211	OS/SYL
2-F96T8 Lamps	0	Ea	11.00	0	35.00	0	0	MEp211	OS/SYL
Install Reflectors									
4' Strp or Indst	6	Ea	6.88	41	7.95	48	89	(2)	NLp18
4' Wrap or Surf	7	Ea	9.17	64	15.90	111	175	(3)	NLp18
2x4 Troffer	0	Ea	11.46	0	25.35	0	0	(4)	NLp18
Total Bare Costs				1735		1772	\$3,507		

CONSTRUCTION COST ESTIMATE

Project: Lighting Upgrade
Location: Pine Bluff Arsenal, AR
Basis: Pre-Design Study
Building: 13-020

RS&H No.: 694-1331-001
Date: 23-Mar-95
Estimator: W.T.Todd
Filename: EST-SUMP.WQ1

[illegible]

LEGEND & NOTES

Labor costs based on Means manhour estimates and labor rate (\$27.50/hr).

DGSC Defense General Supply Center, February 1994 Catalog.

GRp### Grainger Catalog No. 385, page ###, x 0.80 for contr price.

MBp### Means Building Construction Cost Data, 1994, page ###.

MEp### Means Electrical Cost Data, 1994, page ###.

NLP### National Lighting Maintenance Supply Corp., 1995, page ###.

OS/SYL Telephone quote from Osram/Sylvania representative.

PBA Information provided by Pine Bluff Arsenal staff.

- (1) Assume lampholder removal takes 5 minutes each.
- (2) Assume 15 minutes for installation of reflector.
- (3) Assume 20 minutes for installation of reflector.
- (4) Assume 25 minutes for installation of reflector.

CONSTRUCTION COST ESTIMATE

Project: Lighting Upgrade
 Location: Pine Bluff Arsenal, AR
 Basis: Pre-Design Study
 Building: 13-030

RS&H No.: 694-1331-001
 Date: 23-Mar-95
 Estimator: W.T.Todd
 Filename: EST-SUMP.WQ1

ITEM DESCRIPTION	QUANTITY		LABOR		MATERIAL		TOTAL COST	SOURCE	
	No.	Unit	\$/Unit	Total	\$/Unit	Total		Labor	Material
Fixture Removal									
2x2 UTF or Inc Surf	0	Ea	10.01	0	0.00	0	0	MEp17	N/A
2x4 FI Troffer	0	Ea	14.66	0	0.00	0	0	MEp17	N/A
4' FI Surf Strip	0	Ea	9.79	0	0.00	0	0	MEp18	N/A
4' FI Surf Wrap	0	Ea	13.34	0	0.00	0	0	MEp17	N/A
4' FI Pend Indust	0	Ea	12.57	0	0.00	0	0	MEp18	N/A
8' FI Pend Indust	0	Ea	16.31	0	0.00	0	0	MEp18	N/A
8' FI Surf Strip	0	Ea	11.00	0	0.00	0	0	MEp18	N/A
Low Bay Fixture	0	Ea	22.00	0	0.00	0	0	MEp18	N/A
High Bay Fixture	0	Ea	29.34	0	0.00	0	0	MEp18	N/A
Repair Plas Ceiling	0	SF	0.63	0	0.37	0	0	MBp229	MBp229
Inst. Ceiling Tile	0	SF	0.36	0	0.72	0	0	MBp237	MBp237
Fixture Installation									
11" Srf, 2-26W CFL	0	Ea	27.50	0	79.95	0	0	MEp209	NLp12
High Bay, 1-100W MH	0	Ea	95.65	0	186.27	0	0	MEp208	GRp923
4', 1 Lamp Indust.	0	Ea	36.99	0	52.34	0	0	MEp208	GRp918
4', 2 Lamp Indust.	0	Ea	38.61	0	53.24	0	0	MEp208	GRp917
4', 2 Lmp Ind w/Refl	0	Ea	38.61	0	58.24	0	0	MEp208	GRp918
4', 1 Lamp Strip	0	Ea	25.88	0	44.18	0	0	MEp208	GRp915
4', 2 Lamp Strip	0	Ea	27.50	0	47.99	0	0	MEp208	NLp15
2x4, 2 Lamp Surf Mt	0	Ea	35.48	0	76.04	0	0	MEp208	MEp208
2x4, 2 Lamp Troffer	0	Ea	41.50	0	58.99	0	0	MEp207	NLp15
4', 2 Lamp WA	0	Ea	31.43	0	56.54	0	0	MEp208	NLp15
4', 2 Lamp WA Wet	0	Ea	68.75	0	84.04	0	0	MEp210	MEp210
4', 2 Lamp WA w/Refl	0	Ea	31.43	0	75.54	0	0	MEp208	NLp15
4', 4 Lamp WA	0	Ea	41.50	0	71.58	0	0	MEp208	NLp15
8', 2 Lamp Indust.	0	Ea	50.00	0	84.44	0	0	MEp208	GRp917
Fixture Upgrades									
Remove Incand Lamps	0	Ea	1.38	0	0.00	0	0	MEp215	N/A
Install Integral CF									
15W w/ Elec Bal	0	Ea	1.38	0	19.95	0	0	MEp215	NLp9
20W w/ Elec Bal	0	Ea	1.38	0	19.95	0	0	MEp215	NLp9
23W w/ Elec Bal	0	Ea	1.38	0	19.95	0	0	MEp215	NLp9
28W w/ Mag Bal	0	Ea	1.38	0	29.95	0	0	MEp215	NLp10
Remove Fluor Lamps	84	Ea	1.83	154	0.00	0	154	MEp13	N/A
Remove Ballasts	42	Ea	11.00	462	0.00	0	462	MEp211	N/A
Remove Lampholders	10	Ea	2.29	23	0.00	0	23	(1)	N/A
Install T8 Lamps									
F32T8/TL70/35K	74	Ea	1.83	135	2.02	149	284	MEp13	DGSC
F96T8/TL70/35K	0	Ea	1.83	0	6.40	0	0	MEp13	OS/SYL
FB32T8/TL70/35K	0	Ea	1.83	0	9.34	0	0	MEp13	DGSC
Install T8 Ballasts									
2-F32T8 Lamps	13	Ea	11.00	143	22.50	293	436	MEp211	OS/SYL
3-F32T8 Lamps	0	Ea	11.00	0	23.50	0	0	MEp211	OS/SYL
4-F32T8 Lamps	12	Ea	11.00	132	24.50	294	426	MEp211	OS/SYL
2-F96T8 Lamps	0	Ea	11.00	0	35.00	0	0	MEp211	OS/SYL
Install Reflectors									
4' Strp or Indst	0	Ea	6.88	0	7.95	0	0	(2)	NLp18
4' Wrap or Surf	0	Ea	9.17	0	15.90	0	0	(3)	NLp18
2x4 Troffer	7	Ea	11.46	80	25.35	177	257	(4)	NLp18
Total Bare Costs				1129		913	\$2,042		

CONSTRUCTION COST ESTIMATE

Project: Lighting Upgrade
Location: Pine Bluff Arsenal, AR
Basis: Pre-Design Study
Building: 13-030

RS&H No.: 694-1331-001
Date: 23-Mar-95
Estimator: W.T.Todd
Filename: EST-SUMP.WQ1

[illegible]

LEGEND & NOTES

Labor costs based on Means manhour estimates and labor rate (\$27.50/hr).

DGSC Defense General Supply Center, February 1994 Catalog.

GRp### Grainger Catalog No. 385, page ###, x 0.80 for contr price.

MBp### Means Building Construction Cost Data, 1994, page ###.

MEp### Means Electrical Cost Data, 1994, page ###.

NLP### National Lighting Maintenance Supply Corp., 1995, page ###.

OS/SYL Telephone quote from Osram/Sylvania representative.

PBA Information provided by Pine Bluff Arsenal staff.

- (1) Assume lampholder removal takes 5 minutes each.
- (2) Assume 15 minutes for installation of reflector.
- (3) Assume 20 minutes for installation of reflector.
- (4) Assume 25 minutes for installation of reflector.

CONSTRUCTION COST ESTIMATE

Project: Lighting Upgrade
 Location: Pine Bluff Arsenal, AR
 Basis: Pre-Design Study
 Building: 13-040

RS&H No.: 694-1331-001
 Date: 23-Mar-95
 Estimator: W.T.Todd
 Filename: EST-SUMP.WQ1

ITEM DESCRIPTION	QUANTITY		LABOR		MATERIAL		TOTAL COST	SOURCE	
	No.	Unit	\$/Unit	Total	\$/Unit	Total		Labor	Material
Fixture Removal									
2x2 UTF or Inc Surf	0	Ea	10.01	0	0.00	0	0	MEp17	N/A
2x4 FI Troffer	4	Ea	14.66	59	0.00	0	59	MEp17	N/A
4' FI Surf Strip	0	Ea	9.79	0	0.00	0	0	MEp17	N/A
4' FI Surf Wrap	0	Ea	13.34	0	0.00	0	0	MEp17	N/A
4' FI Pend Indust	0	Ea	12.57	0	0.00	0	0	MEp18	N/A
8' FI Pend Indust	0	Ea	16.31	0	0.00	0	0	MEp18	N/A
8' FI Surf Strip	0	Ea	11.00	0	0.00	0	0	MEp18	N/A
Low Bay Fixture	0	Ea	22.00	0	0.00	0	0	MEp18	N/A
High Bay Fixture	0	Ea	29.34	0	0.00	0	0	MEp18	N/A
Repair Plas Ceiling	0	SF	0.63	0	0.37	0	0	MBp229	MBp229
Inst. Ceiling Tile	32	SF	0.36	12	0.72	23	35	MBp237	MBp237
Fixture Installation									
11" Srf, 2-26W CFL	0	Ea	27.50	0	79.95	0	0	MEp209	NLp12
High Bay, 1-100W MH	0	Ea	95.65	0	186.27	0	0	MEp208	GRp923
4', 1 Lamp Indust.	0	Ea	36.99	0	52.34	0	0	MEp208	GRp918
4', 2 Lamp Indust.	0	Ea	38.61	0	53.24	0	0	MEp208	GRp917
4', 2 Lmp Ind w/Refl	0	Ea	38.61	0	58.24	0	0	MEp208	GRp918
4', 1 Lamp Strip	0	Ea	25.88	0	44.18	0	0	MEp208	GRp915
4', 2 Lamp Strip	0	Ea	27.50	0	47.99	0	0	MEp208	NLp15
2x4, 2 Lamp Surf Mt	0	Ea	35.48	0	76.04	0	0	MEp208	MEp208
2x4, 2 Lamp Troffer	0	Ea	41.50	0	58.99	0	0	MEp207	NLp15
4', 2 Lamp WA	0	Ea	31.43	0	56.54	0	0	MEp208	NLp15
4', 2 Lamp WA Wet	0	Ea	68.75	0	84.04	0	0	MEp210	MEp210
4', 2 Lamp WA w/Refl	0	Ea	31.43	0	75.54	0	0	MEp208	NLp15
4', 4 Lamp WA	0	Ea	41.50	0	71.58	0	0	MEp208	NLp15
8', 2 Lamp Indust.	0	Ea	50.00	0	84.44	0	0	MEp208	GRp917
Fixture Upgrades									
Remove Incand Lamps	1	Ea	1.38	1	0.00	0	1	MEp215	N/A
Install Integral CF									
15W w/ Elec Bal	0	Ea	1.38	0	19.95	0	0	MEp215	NLp9
20W w/ Elec Bal	1	Ea	1.38	1	19.95	20	21	MEp215	NLp9
23W w/ Elec Bal	0	Ea	1.38	0	19.95	0	0	MEp215	NLp9
28W w/ Mag Bal	0	Ea	1.38	0	29.95	0	0	MEp215	NLp10
Remove Fluor Lamps	52	Ea	1.83	95	0.00	0	95	MEp13	N/A
Remove Ballasts	26	Ea	11.00	286	0.00	0	286	MEp211	N/A
Remove Lampholders	0	Ea	2.29	0	0.00	0	0	(1)	N/A
Install T8 Lamps									
F32T8/TL70/35K	52	Ea	1.83	95	2.02	105	200	MEp13	DGSC
F96T8/TL70/35K	0	Ea	1.83	0	6.40	0	0	MEp13	OS/SYL
FB32T8/TL70/35K	0	Ea	1.83	0	9.34	0	0	MEp13	DGSC
Install T8 Ballasts									
2-F32T8 Lamps	26	Ea	11.00	286	22.50	585	871	MEp211	OS/SYL
3-F32T8 Lamps	0	Ea	11.00	0	23.50	0	0	MEp211	OS/SYL
4-F32T8 Lamps	0	Ea	11.00	0	24.50	0	0	MEp211	OS/SYL
2-F96T8 Lamps	0	Ea	11.00	0	35.00	0	0	MEp211	OS/SYL
Install Reflectors									
4' Strp or Indst	0	Ea	6.88	0	7.95	0	0	(2)	NLp18
4' Wrap or Surf	0	Ea	9.17	0	15.90	0	0	(3)	NLp18
2x4 Troffer	0	Ea	11.46	0	25.35	0	0	(4)	NLp18
Total Bare Costs				835		733	\$1,568		

CONSTRUCTION COST ESTIMATE

Project: Lighting Upgrade
 Location: Pine Bluff Arsenal, AR
 Basis: Pre-Design Study
 Building: 13-040

RS&H No.: 694-1331-001
 Date: 23-Mar-95
 Estimator: W.T.Todd
 Filename: EST-SUMP.WQ1

ITEM DESCRIPTION	QUANTITY		LABOR		MATERIAL		TOTAL COST	SOURCE	
	No.	Unit	\$/Unit	Total	\$/Unit	Total		Labor	Material
Total Bare Costs				835		733	\$1,568		
Economy of Scale			-20.0%	-167		0	(167)	MEp360	
Subtotal				668		733	1,401		
City Cost Index			-30.1%	-201	-3.5%	-26	(227)	MEp388	MEp388
Subtotal				467		707	1,174		
OH & Profit Markups			50.0%	234	10.0%	71	305	MEpIBC	MEp3
Subtotal				701		778	1,479		
Sales Taxes				0	6.5%	51	51		PBA
Subtotal				701		829	1,530		
Contingency			10.0%	70	10.0%	83	153	MEp4	MEp4
Subtotal				771		912	1,683		
Design Fee	6.0%			101		0	101	PBA	
SIOH	6.0%			101		0	101	PBA	
Total Const. Cost				973		912	\$1,885		

LEGEND & NOTES

Labor costs based on Means manhour estimates and labor rate (\$27.50/hr).

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MBp### Means Building Construction Cost Data, 1994, page ###.

MEp### Means Electrical Cost Data, 1994, page ###.

NLp### National Lighting Maintenance Supply Corp., 1995, page ###.

OS/SYL Telephone quote from Osram/Sylvania representative.

PBA Information provided by Pine Bluff Arsenal staff.

(1) Assume lampholder removal takes 5 minutes each.

(2) Assume 15 minutes for installation of reflector.

(3) Assume 20 minutes for installation of reflector.

(4) Assume 25 minutes for installation of reflector.

CONSTRUCTION COST ESTIMATE

Project: Lighting Upgrade
 Location: Pine Bluff Arsenal, AR
 Basis: Pre-Design Study
 Building: 13-060

RS&H No.: 694-1331-001
 Date: 23-Mar-95
 Estimator: W.T.Todd
 Filename: EST-SUMP.WQ1

ITEM DESCRIPTION	QUANTITY		LABOR		MATERIAL		TOTAL COST	SOURCE	
	No.	Unit	\$/Unit	Total	\$/Unit	Total		Labor	Material
Fixture Removal									
2x2 UTF or Inc Surf	0	Ea	10.01	0	0.00	0	0	MEp17	N/A
2x4 FI Troffer	3	Ea	14.66	44	0.00	0	44	MEp17	N/A
4' FI Surf Strip	0	Ea	9.79	0	0.00	0	0	MEp18	N/A
4' FI Surf Wrap	0	Ea	13.34	0	0.00	0	0	MEp17	N/A
4' FI Pend Indust	0	Ea	12.57	0	0.00	0	0	MEp18	N/A
8' FI Pend Indust	0	Ea	16.31	0	0.00	0	0	MEp18	N/A
8' FI Surf Strip	0	Ea	11.00	0	0.00	0	0	MEp18	N/A
Low Bay Fixture	0	Ea	22.00	0	0.00	0	0	MEp18	N/A
High Bay Fixture	0	Ea	29.34	0	0.00	0	0	MEp18	N/A
Repair Plas Ceiling	0	SF	0.63	0	0.37	0	0	MBp229	MBp229
Inst. Ceiling Tile	24	SF	0.36	9	0.72	17	26	MBp237	MBp237
Fixture Installation									
11" Srf, 2-26W CFL	0	Ea	27.50	0	79.95	0	0	MEp209	NLp12
High Bay, 1-100W MH	0	Ea	95.65	0	186.27	0	0	MEp208	GRp923
4', 1 Lamp Indust.	0	Ea	36.99	0	52.34	0	0	MEp208	GRp918
4', 2 Lamp Indust.	0	Ea	38.61	0	53.24	0	0	MEp208	GRp917
4', 2 Lmp Ind w/Refl	0	Ea	38.61	0	58.24	0	0	MEp208	GRp918
4', 1 Lamp Strip	0	Ea	25.88	0	44.18	0	0	MEp208	GRp915
4', 2 Lamp Strip	0	Ea	27.50	0	47.99	0	0	MEp208	NLp15
2x4, 2 Lamp Surf Mt	0	Ea	35.48	0	76.04	0	0	MEp208	MEp208
2x4, 2 Lamp Troffer	0	Ea	41.50	0	58.99	0	0	MEp207	NLp15
4', 2 Lamp WA	0	Ea	31.43	0	56.54	0	0	MEp208	NLp15
4', 2 Lamp WA Wet	0	Ea	68.75	0	84.04	0	0	MEp210	MEp210
4', 2 Lamp WA w/Refl	0	Ea	31.43	0	75.54	0	0	MEp208	NLp15
4', 4 Lamp WA	0	Ea	41.50	0	71.58	0	0	MEp208	NLp15
8', 2 Lamp Indust.	0	Ea	50.00	0	84.44	0	0	MEp208	GRp917
Fixture Upgrades									
Remove Incand Lamps	0	Ea	1.38	0	0.00	0	0	MEp215	N/A
Install Integral CF									
15W w/ Elec Bal	0	Ea	1.38	0	19.95	0	0	MEp215	NLp9
20W w/ Elec Bal	0	Ea	1.38	0	19.95	0	0	MEp215	NLp9
23W w/ Elec Bal	0	Ea	1.38	0	19.95	0	0	MEp215	NLp9
28W w/ Mag Bal	0	Ea	1.38	0	29.95	0	0	MEp215	NLp10
Remove Fluor Lamps	68	Ea	1.83	124	0.00	0	124	MEp13	N/A
Remove Ballasts	34	Ea	11.00	374	0.00	0	374	MEp211	N/A
Remove Lampholders	34	Ea	2.29	78	0.00	0	78	(1)	N/A
Install T8 Lamps									
F32T8/TL70/35K	34	Ea	1.83	62	2.02	69	131	MEp13	DGSC
F96T8/TL70/35K	0	Ea	1.83	0	6.40	0	0	MEp13	OS/SYL
FB32T8/TL70/35K	0	Ea	1.83	0	9.34	0	0	MEp13	DGSC
Install T8 Ballasts									
2-F32T8 Lamps	17	Ea	11.00	187	22.50	383	570	MEp211	OS/SYL
3-F32T8 Lamps	0	Ea	11.00	0	23.50	0	0	MEp211	OS/SYL
4-F32T8 Lamps	0	Ea	11.00	0	24.50	0	0	MEp211	OS/SYL
2-F96T8 Lamps	0	Ea	11.00	0	35.00	0	0	MEp211	OS/SYL
Install Reflectors									
4' Strp or Indst	0	Ea	6.88	0	7.95	0	0	(2)	NLp18
4' Wrap or Surf	0	Ea	9.17	0	15.90	0	0	(3)	NLp18
2x4 Troffer	5	Ea	11.46	57	25.35	127	184	(4)	NLp18
Total Bare Costs				935		596	\$1,531		

CONSTRUCTION COST ESTIMATE

Project: Lighting Upgrade
Location: Pine Bluff Arsenal, AR
Basis: Pre-Design Study
Building: 13-060

RS&H No.: 694-1331-001
Date: 23-Mar-95
Estimator: W.T.Todd
Filename: EST-SUMP.WQ1

[illegible]

LEGEND & NOTES

Labor costs based on Means manhour estimates and labor rate (\$27.50/hr).

DGSC Defense General Supply Center, February 1994 Catalog.

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NLP### National Lighting Maintenance Supply Corp., 1995, page ###.

OS/SYL Telephone quote from Osram/Sylvania representative.

PBA Information provided by Pine Bluff Arsenal staff.

- (1) Assume lampholder removal takes 5 minutes each.
- (2) Assume 15 minutes for installation of reflector.
- (3) Assume 20 minutes for installation of reflector.
- (4) Assume 25 minutes for installation of reflector.

CONSTRUCTION COST ESTIMATE

Project: Lighting Upgrade
 Location: Pine Bluff Arsenal, AR
 Basis: Pre-Design Study
 Building: 13-080

RS&H No.: 694-1331-001
 Date: 23-Mar-95
 Estimator: W.T.Todd
 Filename: EST-SUMP.WQ1

ITEM DESCRIPTION	QUANTITY		LABOR		MATERIAL		TOTAL COST	SOURCE	
	No.	Unit	\$/Unit	Total	\$/Unit	Total		Labor	Material
Fixture Removal									
2x2 UTF or Inc Surf	0	Ea	10.01	0	0.00	0	0	MEp17	N/A
2x4 FI Troffer	0	Ea	14.66	0	0.00	0	0	MEp17	N/A
4' FI Surf Strip	0	Ea	9.79	0	0.00	0	0	MEp18	N/A
4' FI Surf Wrap	14	Ea	13.34	187	0.00	0	187	MEp17	N/A
4' FI Pend Indust	0	Ea	12.57	0	0.00	0	0	MEp18	N/A
8' FI Pend Indust	0	Ea	16.31	0	0.00	0	0	MEp18	N/A
8' FI Surf Strip	0	Ea	11.00	0	0.00	0	0	MEp18	N/A
Low Bay Fixture	0	Ea	22.00	0	0.00	0	0	MEp18	N/A
High Bay Fixture	0	Ea	29.34	0	0.00	0	0	MEp18	N/A
Repair Plas Ceiling	14	SF	0.63	9	0.37	5	14	MBp229	MBp229
Inst. Ceiling Tile	0	SF	0.36	0	0.72	0	0	MBp237	MBp237
Fixture Installation									
11" Srf, 2-26W CFL	0	Ea	27.50	0	79.95	0	0	MEp209	NLp12
High Bay, 1-100W MH	0	Ea	95.65	0	186.27	0	0	MEp208	GRp923
4', 1 Lamp Indust.	0	Ea	36.99	0	52.34	0	0	MEp208	GRp918
4', 2 Lamp Indust.	0	Ea	38.61	0	53.24	0	0	MEp208	GRp917
4', 2 Lmp Ind w/Refl	0	Ea	38.61	0	58.24	0	0	MEp208	GRp918
4', 1 Lamp Strip	0	Ea	25.88	0	44.18	0	0	MEp208	GRp915
4', 2 Lamp Strip	0	Ea	27.50	0	47.99	0	0	MEp208	NLp15
2x4, 2 Lamp Surf Mt	0	Ea	35.48	0	76.04	0	0	MEp208	MEp208
2x4, 2 Lamp Troffer	0	Ea	41.50	0	58.99	0	0	MEp207	NLp15
4', 2 Lamp WA	0	Ea	31.43	0	56.54	0	0	MEp208	NLp15
4', 2 Lamp WA Wet	0	Ea	68.75	0	84.04	0	0	MEp210	MEp210
4', 2 Lamp WA w/Refl	14	Ea	31.43	440	75.54	1058	1,498	MEp208	NLp15
4', 4 Lamp WA	0	Ea	41.50	0	71.58	0	0	MEp208	NLp15
8', 2 Lamp Indust.	0	Ea	50.00	0	84.44	0	0	MEp208	GRp917
Fixture Upgrades									
Remove Incand Lamps	7	Ea	1.38	10	0.00	0	10	MEp215	N/A
Install Integral CF									
15W w/ Elec Bal	0	Ea	1.38	0	19.95	0	0	MEp215	NLp9
20W w/ Elec Bal	7	Ea	1.38	10	19.95	140	150	MEp215	NLp9
23W w/ Elec Bal	0	Ea	1.38	0	19.95	0	0	MEp215	NLp9
28W w/ Mag Bal	0	Ea	1.38	0	29.95	0	0	MEp215	NLp10
Remove Fluor Lamps	8	Ea	1.83	15	0.00	0	15	MEp13	N/A
Remove Ballasts	4	Ea	11.00	44	0.00	0	44	MEp211	N/A
Remove Lampholders	0	Ea	2.29	0	0.00	0	0	(1)	N/A
Install T8 Lamps									
F32T8/TL70/35K	8	Ea	1.83	15	2.02	16	31	MEp13	DGSC
F96T8/TL70/35K	0	Ea	1.83	0	6.40	0	0	MEp13	OS/SYL
FB32T8/TL70/35K	0	Ea	1.83	0	9.34	0	0	MEp13	DGSC
Install T8 Ballasts									
2-F32T8 Lamps	0	Ea	11.00	0	22.50	0	0	MEp211	OS/SYL
3-F32T8 Lamps	0	Ea	11.00	0	23.50	0	0	MEp211	OS/SYL
4-F32T8 Lamps	2	Ea	11.00	22	24.50	49	71	MEp211	OS/SYL
2-F96T8 Lamps	0	Ea	11.00	0	35.00	0	0	MEp211	OS/SYL
Install Reflectors									
4' Strp or Indst	0	Ea	6.88	0	7.95	0	0	(2)	NLp18
4' Wrap or Surf	0	Ea	9.17	0	15.90	0	0	(3)	NLp18
2x4 Troffer	0	Ea	11.46	0	25.35	0	0	(4)	NLp18
Total Bare Costs				752		1268	\$2,020		

CONSTRUCTION COST ESTIMATE

Project: Lighting Upgrade
Location: Pine Bluff Arsenal, AR
Basis: Pre-Design Study
Building: 13-080

RS&H No.: 694-1331-001
Date: 23-Mar-95
Estimator: W.T.Todd
Filename: EST-SUMP.WQ1

[illegible]

LEGEND & NOTES

Labor costs based on Means manhour estimates and labor rate (\$27.50/hr).

DGSC Defense General Supply Center, February 1994 Catalog.

GRp### Grainger Catalog No. 385, page ###, x 0.80 for contr price.

MBP### Means Building Construction Cost Data, 1994, page ###.

MEp### Means Electrical Cost Data, 1994, page ###.

NLP### National Lighting Maintenance Supply Corp., 1995, page ###.

OS/SYL Telephone quote from Osram/Sylvania representative.

PBA Information provided by Pine Bluff Arsenal staff.

- (1) Assume lampholder removal takes 5 minutes each.
- (2) Assume 15 minutes for installation of reflector.
- (3) Assume 20 minutes for installation of reflector.
- (4) Assume 25 minutes for installation of reflector.

CONSTRUCTION COST ESTIMATE

Project: Lighting Upgrade
 Location: Pine Bluff Arsenal, AR
 Basis: Pre-Design Study
 Building: 13-100

RS&H No.: 694-1331-001
 Date: 23-Mar-95
 Estimator: W.T.Todd
 Filename: EST-SUMP.WQ1

ITEM DESCRIPTION	QUANTITY		LABOR		MATERIAL		TOTAL COST	SOURCE	
	No.	Unit	\$/Unit	Total	\$/Unit	Total		Labor	Material
Fixture Removal									
2x2 UTF or Inc Surf	0	Ea	10.01	0	0.00	0	0	MEp17	N/A
2x4 FI Troffer	0	Ea	14.66	0	0.00	0	0	MEp17	N/A
4' FI Surf Strip	0	Ea	9.79	0	0.00	0	0	MEp18	N/A
4' FI Surf Wrap	2	Ea	13.34	27	0.00	0	27	MEp17	N/A
4' FI Pend Indust	0	Ea	12.57	0	0.00	0	0	MEp18	N/A
8' FI Pend Indust	0	Ea	16.31	0	0.00	0	0	MEp18	N/A
8' FI Surf Strip	0	Ea	11.00	0	0.00	0	0	MEp18	N/A
Low Bay Fixture	0	Ea	22.00	0	0.00	0	0	MEp18	N/A
High Bay Fixture	0	Ea	29.34	0	0.00	0	0	MEp18	N/A
Repair Plas Ceiling	2	SF	0.63	1	0.37	1	2	MBp229	MBp229
Inst. Ceiling Tile	0	SF	0.36	0	0.72	0	0	MBp237	MBp237
Fixture Installation									
11" Srf, 2-26W CFL	0	Ea	27.50	0	79.95	0	0	MEp209	NLp12
High Bay, 1-100W MH	0	Ea	95.65	0	186.27	0	0	MEp208	GRp923
4', 1 Lamp Indust.	0	Ea	36.99	0	52.34	0	0	MEp208	GRp918
4', 2 Lamp Indust.	0	Ea	38.61	0	53.24	0	0	MEp208	GRp917
4', 2 Lmp Ind w/Refl	0	Ea	38.61	0	58.24	0	0	MEp208	GRp918
4', 1 Lamp Strip	0	Ea	25.88	0	44.18	0	0	MEp208	GRp915
4', 2 Lamp Strip	0	Ea	27.50	0	47.99	0	0	MEp208	NLp15
2x4, 2 Lamp Surf Mt	0	Ea	35.48	0	76.04	0	0	MEp208	MEp208
2x4, 2 Lamp Troffer	0	Ea	41.50	0	58.99	0	0	MEp207	NLp15
4', 2 Lamp WA	2	Ea	31.43	63	56.54	113	176	MEp208	NLp15
4', 2 Lamp WA Wet	0	Ea	68.75	0	84.04	0	0	MEp210	MEp210
4', 2 Lamp WA w/Refl	0	Ea	31.43	0	75.54	0	0	MEp208	NLp15
4', 4 Lamp WA	0	Ea	41.50	0	71.58	0	0	MEp208	NLp15
8', 2 Lamp Indust.	0	Ea	50.00	0	84.44	0	0	MEp208	GRp917
Fixture Upgrades									
Remove Incand Lamps	0	Ea	1.38	0	0.00	0	0	MEp215	N/A
Install Integral CF									
15W w/ Elec Bal	0	Ea	1.38	0	19.95	0	0	MEp215	NLp9
20W w/ Elec Bal	0	Ea	1.38	0	19.95	0	0	MEp215	NLp9
23W w/ Elec Bal	0	Ea	1.38	0	19.95	0	0	MEp215	NLp9
28W w/ Mag Bal	0	Ea	1.38	0	29.95	0	0	MEp215	NLp10
Remove Fluor Lamps	38	Ea	1.83	70	0.00	0	70	MEp13	N/A
Remove Ballasts	19	Ea	11.00	209	0.00	0	209	MEp211	N/A
Remove Lampholders	2	Ea	2.29	5	0.00	0	5	(1)	N/A
Install T8 Lamps									
F32T8/TL70/35K	36	Ea	1.83	66	2.02	73	139	MEp13	DGSC
F96T8/TL70/35K	0	Ea	1.83	0	6.40	0	0	MEp13	OS/SYL
FB32T8/TL70/35K	0	Ea	1.83	0	9.34	0	0	MEp13	DGSC
Install T8 Ballasts									
2-F32T8 Lamps	12	Ea	11.00	132	22.50	270	402	MEp211	OS/SYL
3-F32T8 Lamps	0	Ea	11.00	0	23.50	0	0	MEp211	OS/SYL
4-F32T8 Lamps	3	Ea	11.00	33	24.50	74	107	MEp211	OS/SYL
2-F96T8 Lamps	0	Ea	11.00	0	35.00	0	0	MEp211	OS/SYL
Install Reflectors									
4' Strp or Indst	0	Ea	6.88	0	7.95	0	0	(2)	NLp18
4' Wrap or Surf	0	Ea	9.17	0	15.90	0	0	(3)	NLp18
2x4 Troffer	0	Ea	11.46	0	25.35	0	0	(4)	NLp18
Total Bare Costs				606		531	\$1,137		

CONSTRUCTION COST ESTIMATE

Project: Lighting Upgrade
 Location: Pine Bluff Arsenal, AR
 Basis: Pre-Design Study
 Building: 13-100

RS&H No.: 694-1331-001
 Date: 23-Mar-95
 Estimator: W.T.Todd
 Filename: EST-SUMP.WQ1

ITEM DESCRIPTION	QUANTITY		LABOR		MATERIAL		TOTAL COST	SOURCE	
	No.	Unit	\$/Unit	Total	\$/Unit	Total		Labor	Material
Total Bare Costs				606		531	\$1,137		
Economy of Scale			-20.0%	-121		0	(121)	MEp360	
Subtotal				485		531	1,016		
City Cost Index			-30.1%	-146	-3.5%	-19	(165)	MEp388	MEp388
Subtotal				339		512	851		
OH & Profit Markups			50.0%	170	10.0%	51	221	MEpIBC	MEp3
Subtotal				509		563	1,072		
Sales Taxes				0	6.5%	37	37		PBA
Subtotal				509		600	1,109		
Contingency			10.0%	51	10.0%	60	111	MEp4	MEp4
Subtotal				560		660	1,220		
Design Fee	6.0%			73		0	73	PBA	
SIOH	6.0%			73		0	73	PBA	
Total Const. Cost				706		660	\$1,366		

LEGEND & NOTES

Labor costs based on Means manhour estimates and labor rate (\$27.50/hr).

DGSC Defense General Supply Center, February 1994 Catalog.

GRp### Grainger Catalog No. 385, page ###, x 0.80 for contr price.

MBp### Means Building Construction Cost Data, 1994, page ###.

MEp### Means Electrical Cost Data, 1994, page ###.

NLp### National Lighting Maintenance Supply Corp., 1995, page ###.

OS/SYL Telephone quote from Osram/Sylvania representative.

PBA Information provided by Pine Bluff Arsenal staff.

(1) Assume lampholder removal takes 5 minutes each.

(2) Assume 15 minutes for installation of reflector.

(3) Assume 20 minutes for installation of reflector.

(4) Assume 25 minutes for installation of reflector.

CONSTRUCTION COST ESTIMATE

Project: Lighting Upgrade
 Location: Pine Bluff Arsenal, AR
 Basis: Pre-Design Study
 Building: 13-110

RS&H No.: 694-1331-001
 Date: 23-Mar-95
 Estimator: W.T.Todd
 Filename: EST-SUMP.WQ1

ITEM DESCRIPTION	QUANTITY		LABOR		MATERIAL		TOTAL COST	SOURCE	
	No.	Unit	\$/Unit	Total	\$/Unit	Total		Labor	Material
Fixture Removal									
2x2 UTF or Inc Surf	0	Ea	10.01	0	0.00	0	0	MEp17	N/A
2x4 FI Troffer	4	Ea	14.66	59	0.00	0	59	MEp17	N/A
4' FI Surf Strip	0	Ea	9.79	0	0.00	0	0	MEp17	N/A
4' FI Surf Wrap	0	Ea	13.34	0	0.00	0	0	MEp17	N/A
4' FI Pend Indust	0	Ea	12.57	0	0.00	0	0	MEp18	N/A
8' FI Pend Indust	0	Ea	16.31	0	0.00	0	0	MEp18	N/A
8' FI Surf Strip	0	Ea	11.00	0	0.00	0	0	MEp18	N/A
Low Bay Fixture	0	Ea	22.00	0	0.00	0	0	MEp18	N/A
High Bay Fixture	0	Ea	29.34	0	0.00	0	0	MEp18	N/A
Repair Plas Ceiling	0	SF	0.63	0	0.37	0	0	MBp229	MBp229
Inst. Ceiling Tile	32	SF	0.36	12	0.72	23	35	MBp237	MBp237
Fixture Installation									
11" Srf, 2-26W CFL	0	Ea	27.50	0	79.95	0	0	MEp209	NLp12
High Bay, 1-100W MH	0	Ea	95.65	0	186.27	0	0	MEp208	GRp923
4', 1 Lamp Indust.	0	Ea	36.99	0	52.34	0	0	MEp208	GRp918
4', 2 Lamp Indust.	0	Ea	38.61	0	53.24	0	0	MEp208	GRp917
4', 2 Lmp Ind w/Refl	0	Ea	38.61	0	58.24	0	0	MEp208	GRp918
4', 1 Lamp Strip	0	Ea	25.88	0	44.18	0	0	MEp208	GRp915
4', 2 Lamp Strip	0	Ea	27.50	0	47.99	0	0	MEp208	NLp15
2x4, 2 Lamp Surf Mt	0	Ea	35.48	0	76.04	0	0	MEp208	MEp208
2x4, 2 Lamp Troffer	0	Ea	41.50	0	58.99	0	0	MEp207	NLp15
4', 2 Lamp WA	0	Ea	31.43	0	56.54	0	0	MEp208	NLp15
4', 2 Lamp WA Wet	0	Ea	68.75	0	84.04	0	0	MEp210	MEp210
4', 2 Lamp WA w/Refl	0	Ea	31.43	0	75.54	0	0	MEp208	NLp15
4', 4 Lamp WA	0	Ea	41.50	0	71.58	0	0	MEp208	NLp15
8', 2 Lamp Indust.	0	Ea	50.00	0	84.44	0	0	MEp208	GRp917
Fixture Upgrades									
Remove Incand Lamps	1	Ea	1.38	1	0.00	0	1	MEp215	N/A
Install Integral CF									
15W w/ Elec Bal	0	Ea	1.38	0	19.95	0	0	MEp215	NLp9
20W w/ Elec Bal	1	Ea	1.38	1	19.95	20	21	MEp215	NLp9
23W w/ Elec Bal	0	Ea	1.38	0	19.95	0	0	MEp215	NLp9
28W w/ Mag Bal	0	Ea	1.38	0	29.95	0	0	MEp215	NLp10
Remove Fluor Lamps	84	Ea	1.83	154	0.00	0	154	MEp13	N/A
Remove Ballasts	42	Ea	11.00	462	0.00	0	462	MEp211	N/A
Remove Lampholders	16	Ea	2.29	37	0.00	0	37	(1)	N/A
Install T8 Lamps									
F32T8/TL70/35K	68	Ea	1.83	124	2.02	137	261	MEp13	DGSC
F96T8/TL70/35K	0	Ea	1.83	0	6.40	0	0	MEp13	OS/SYL
FB32T8/TL70/35K	0	Ea	1.83	0	9.34	0	0	MEp13	DGSC
Install T8 Ballasts									
2-F32T8 Lamps	24	Ea	11.00	264	22.50	540	804	MEp211	OS/SYL
3-F32T8 Lamps	0	Ea	11.00	0	23.50	0	0	MEp211	OS/SYL
4-F32T8 Lamps	5	Ea	11.00	55	24.50	123	178	MEp211	OS/SYL
2-F96T8 Lamps	0	Ea	11.00	0	35.00	0	0	MEp211	OS/SYL
Install Reflectors									
4' Strp or Indst	0	Ea	6.88	0	7.95	0	0	(2)	NLp18
4' Wrap or Surf	0	Ea	9.17	0	15.90	0	0	(3)	NLp18
2x4 Troffer	0	Ea	11.46	0	25.35	0	0	(4)	NLp18
Total Bare Costs				1169		843	\$2,012		

CONSTRUCTION COST ESTIMATE

Project: Lighting Upgrade
Location: Pine Bluff Arsenal, AR
Basis: Pre-Design Study
Building: 13-110

RS&H No.: 694-1331-001
Date: 23-Mar-95
Estimator: W.T.Todd
Filename: EST-SUMP.WQ1

[illegible]

LEGEND & NOTES

Labor costs based on Means manhour estimates and labor rate (\$27.50/hr).

DGSC Defense General Supply Center, February 1994 Catalog.

GRp### Grainger Catalog No. 385, page ###, x 0.80 for contr price.

MBp### Means Building Construction Cost Data, 1994, page ###.

MEp### Means Electrical Cost Data, 1994, page ###.

NLP### National Lighting Maintenance Supply Corp., 1995, page ###.

OS/SYL Telephone quote from Osram/Sylvania representative.

PBA Information provided by Pine Bluff Arsenal staff.

- (1) Assume lampholder removal takes 5 minutes each.
- (2) Assume 15 minutes for installation of reflector.
- (3) Assume 20 minutes for installation of reflector.
- (4) Assume 25 minutes for installation of reflector.

CONSTRUCTION COST ESTIMATE

Project: Lighting Upgrade
 Location: Pine Bluff Arsenal, AR
 Basis: Pre-Design Study
 Building: 16-210 & 16-220

RS&H No.: 694-1331-001
 Date: 23-Mar-95
 Estimator: W.T.Todd
 Filename: EST-SUMP.WQ1

ITEM DESCRIPTION	QUANTITY		LABOR		MATERIAL		TOTAL COST	SOURCE	
	No.	Unit	\$/Unit	Total	\$/Unit	Total		Labor	Material
Fixture Removal									
2x2 UTF or Inc Surf	4	Ea	10.01	40	0.00	0	40	MEp17	N/A
2x4 FI Troffer	12	Ea	14.66	176	0.00	0	176	MEp17	N/A
4' FI Surf Strip	0	Ea	9.79	0	0.00	0	0	MEp17	N/A
4' FI Surf Wrap	0	Ea	13.34	0	0.00	0	0	MEp17	N/A
4' FI Pend Indust	0	Ea	12.57	0	0.00	0	0	MEp18	N/A
8' FI Pend Indust	0	Ea	16.31	0	0.00	0	0	MEp18	N/A
8' FI Surf Strip	0	Ea	11.00	0	0.00	0	0	MEp18	N/A
Low Bay Fixture	0	Ea	22.00	0	0.00	0	0	MEp18	N/A
High Bay Fixture	0	Ea	29.34	0	0.00	0	0	MEp18	N/A
Repair Plas Ceiling	4	SF	0.63	3	0.37	1	4	MBp229	MBp229
Inst. Ceiling Tile	96	SF	0.36	35	0.72	69	104	MBp237	MBp237
Fixture Installation									
11" Srf, 2-26W CFL	2	Ea	27.50	55	79.95	160	215	MEp209	NLp12
High Bay, 1-100W MH	0	Ea	95.65	0	186.27	0	0	MEp208	GRp923
4', 1 Lamp Indust.	0	Ea	36.99	0	52.34	0	0	MEp208	GRp918
4', 2 Lamp Indust.	0	Ea	38.61	0	53.24	0	0	MEp208	GRp917
4', 2 Lmp Ind w/Refl	0	Ea	38.61	0	58.24	0	0	MEp208	GRp918
4', 1 Lamp Strip	0	Ea	25.88	0	44.18	0	0	MEp208	GRp915
4', 2 Lamp Strip	0	Ea	27.50	0	47.99	0	0	MEp208	NLp15
2x4, 2 Lamp Surf Mt	0	Ea	35.48	0	76.04	0	0	MEp208	MEp208
2x4, 2 Lamp Troffer	4	Ea	41.50	166	58.99	236	402	MEp207	NLp15
4', 2 Lamp WA	0	Ea	31.43	0	56.54	0	0	MEp208	NLp15
4', 2 Lamp WA Wet	0	Ea	68.75	0	84.04	0	0	MEp210	MEp210
4', 2 Lamp WA w/Refl	0	Ea	31.43	0	75.54	0	0	MEp208	NLp15
4', 4 Lamp WA	0	Ea	41.50	0	71.58	0	0	MEp208	NLp15
8', 2 Lamp Indust.	0	Ea	50.00	0	84.44	0	0	MEp208	GRp917
Fixture Upgrades									
Remove Incand Lamps	0	Ea	1.38	0	0.00	0	0	MEp215	N/A
Install Integral CF									
15W w/ Elec Bal	0	Ea	1.38	0	19.95	0	0	MEp215	NLp9
20W w/ Elec Bal	0	Ea	1.38	0	19.95	0	0	MEp215	NLp9
23W w/ Elec Bal	0	Ea	1.38	0	19.95	0	0	MEp215	NLp9
28W w/ Mag Bal	0	Ea	1.38	0	29.95	0	0	MEp215	NLp10
Remove Fluor Lamps	48	Ea	1.83	88	0.00	0	88	MEp13	N/A
Remove Ballasts	30	Ea	11.00	330	0.00	0	330	MEp211	N/A
Remove Lampholders	0	Ea	2.29	0	0.00	0	0	(1)	N/A
Install T8 Lamps									
F32T8/TL70/35K	48	Ea	1.83	88	2.02	97	185	MEp13	DGSC
F96T8/TL70/35K	0	Ea	1.83	0	6.40	0	0	MEp13	OS/SYL
FB32T8/TL70/35K	0	Ea	1.83	0	9.34	0	0	MEp13	DGSC
Install T8 Ballasts									
2-F32T8 Lamps	30	Ea	11.00	330	22.50	675	1,005	MEp211	OS/SYL
3-F32T8 Lamps	0	Ea	11.00	0	23.50	0	0	MEp211	OS/SYL
4-F32T8 Lamps	0	Ea	11.00	0	24.50	0	0	MEp211	OS/SYL
2-F96T8 Lamps	0	Ea	11.00	0	35.00	0	0	MEp211	OS/SYL
Install Reflectors									
4' Strp or Indst	0	Ea	6.88	0	7.95	0	0	(2)	NLp18
4' Wrap or Surf	0	Ea	9.17	0	15.90	0	0	(3)	NLp18
2x4 Troffer	0	Ea	11.46	0	25.35	0	0	(4)	NLp18
Total Bare Costs				1311		1238	\$2,549		

CONSTRUCTION COST ESTIMATE

Project: Lighting Upgrade
 Location: Pine Bluff Arsenal, AR
 Basis: Pre-Design Study
 Building: 16-210 & 16-220

RS&H No.: 694-1331-001
 Date: 23-Mar-95
 Estimator: W.T.Todd
 Filename: EST-SUMP.WQ1

ITEM DESCRIPTION	QUANTITY		LABOR		MATERIAL		TOTAL COST	SOURCE	
	No.	Unit	\$/Unit	Total	\$/Unit	Total		Labor	Material
Total Bare Costs				1311		1238	\$2,549		
Economy of Scale			-20.0%	-262		0	(262)	MEp360	
Subtotal				1049		1238	2,287		
City Cost Index			-30.1%	-316	-3.5%	-43	(359)	MEp388	MEp388
Subtotal				733		1195	1,928		
OH & Profit Markups			50.0%	367	10.0%	120	487	MEpIBC	MEp3
Subtotal				1100		1315	2,415		
Sales Taxes				0	6.5%	86	86		PBA
Subtotal				1100		1401	2,501		
Contingency			10.0%	110	10.0%	140	250	MEp4	MEp4
Subtotal				1210		1541	2,751		
Design Fee	6.0%			165		0	165	PBA	
SIOH	6.0%			165		0	165	PBA	
Total Const. Cost				1540		1541	\$3,081		

LEGEND & NOTES

- Labor costs based on Means manhour estimates and labor rate (\$27.50/hr).
 DGSC Defense General Supply Center, February 1994 Catalog.
 GRp### Grainger Catalog No. 385, page ###, x 0.80 for contr price.
 MBp### Means Building Construction Cost Data, 1994, page ###.
 MEp### Means Electrical Cost Data, 1994, page ###.
 NLP### National Lighting Maintenance Supply Corp., 1995, page ###.
 OS/SYL Telephone quote from Osram/Sylvania representative.
 PBA Information provided by Pine Bluff Arsenal staff.
- (1) Assume lampholder removal takes 5 minutes each.
 - (2) Assume 15 minutes for installation of reflector.
 - (3) Assume 20 minutes for installation of reflector.
 - (4) Assume 25 minutes for installation of reflector.

CONSTRUCTION COST ESTIMATE

Project: Lighting Upgrade
 Location: Pine Bluff Arsenal, AR
 Basis: Pre-Design Study
 Building: 31-010

RS&H No.: 694-1331-001
 Date: 23-Mar-95
 Estimator: W.T.Todd
 Filename: EST-SUMP.WQ1

ITEM DESCRIPTION	QUANTITY		LABOR		MATERIAL		TOTAL COST	SOURCE	
	No.	Unit	\$/Unit	Total	\$/Unit	Total		Labor	Material
Fixture Removal									
2x2 UTF or Inc Surf	0	Ea	10.01	0	0.00	0	0	MEp17	N/A
2x4 FI Troffer	0	Ea	14.66	0	0.00	0	0	MEp17	N/A
4' FI Surf Strip	0	Ea	9.79	0	0.00	0	0	MEp18	N/A
4' FI Surf Wrap	0	Ea	13.34	0	0.00	0	0	MEp17	N/A
4' FI Pend Indust	0	Ea	12.57	0	0.00	0	0	MEp18	N/A
8' FI Pend Indust	0	Ea	16.31	0	0.00	0	0	MEp18	N/A
8' FI Surf Strip	0	Ea	11.00	0	0.00	0	0	MEp18	N/A
Low Bay Fixture	0	Ea	22.00	0	0.00	0	0	MEp18	N/A
High Bay Fixture	0	Ea	29.34	0	0.00	0	0	MEp18	N/A
Repair Plas Ceiling	0	SF	0.63	0	0.37	0	0	MBp229	MBp229
Inst. Ceiling Tile	0	SF	0.36	0	0.72	0	0	MBp237	MBp237
Fixture Installation									
11" Srf, 2-26W CFL	0	Ea	27.50	0	79.95	0	0	MEp209	NLp12
High Bay, 1-100W MH	0	Ea	95.65	0	186.27	0	0	MEp208	GRp923
4', 1 Lamp Indust.	0	Ea	36.99	0	52.34	0	0	MEp208	GRp918
4', 2 Lamp Indust.	0	Ea	38.61	0	53.24	0	0	MEp208	GRp917
4', 2 Lmp Ind w/Refl	0	Ea	38.61	0	58.24	0	0	MEp208	GRp918
4', 1 Lamp Strip	0	Ea	25.88	0	44.18	0	0	MEp208	GRp915
4', 2 Lamp Strip	0	Ea	27.50	0	47.99	0	0	MEp208	NLp15
2x4, 2 Lamp Surf Mt	0	Ea	35.48	0	76.04	0	0	MEp208	MEp208
2x4, 2 Lamp Troffer	0	Ea	41.50	0	58.99	0	0	MEp207	NLp15
4', 2 Lamp WA	0	Ea	31.43	0	56.54	0	0	MEp208	NLp15
4', 2 Lamp WA Wet	0	Ea	68.75	0	84.04	0	0	MEp210	MEp210
4', 2 Lamp WA w/Refl	0	Ea	31.43	0	75.54	0	0	MEp208	NLp15
4', 4 Lamp WA	0	Ea	41.50	0	71.58	0	0	MEp208	NLp15
8', 2 Lamp Indust.	0	Ea	50.00	0	84.44	0	0	MEp208	GRp917
Fixture Upgrades									
Remove Incand Lamps	0	Ea	1.38	0	0.00	0	0	MEp215	N/A
Install Integral CF									
15W w/ Elec Bal	0	Ea	1.38	0	19.95	0	0	MEp215	NLp9
20W w/ Elec Bal	0	Ea	1.38	0	19.95	0	0	MEp215	NLp9
23W w/ Elec Bal	0	Ea	1.38	0	19.95	0	0	MEp215	NLp9
28W w/ Mag Bal	0	Ea	1.38	0	29.95	0	0	MEp215	NLp10
Remove Fluor Lamps	24	Ea	1.83	44	0.00	0	44	MEp13	N/A
Remove Ballasts	12	Ea	11.00	132	0.00	0	132	MEp211	N/A
Remove Lampholders	0	Ea	2.29	0	0.00	0	0	(1)	N/A
Install T8 Lamps									
F32T8/TL70/35K	24	Ea	1.83	44	2.02	48	92	MEp13	DGSC
F96T8/TL70/35K	0	Ea	1.83	0	6.40	0	0	MEp13	OS/SYL
FB32T8/TL70/35K	0	Ea	1.83	0	9.34	0	0	MEp13	DGSC
Install T8 Ballasts									
2-F32T8 Lamps	0	Ea	11.00	0	22.50	0	0	MEp211	OS/SYL
3-F32T8 Lamps	0	Ea	11.00	0	23.50	0	0	MEp211	OS/SYL
4-F32T8 Lamps	6	Ea	11.00	66	24.50	147	213	MEp211	OS/SYL
2-F96T8 Lamps	0	Ea	11.00	0	35.00	0	0	MEp211	OS/SYL
Install Reflectors									
4' Strp or Indst	0	Ea	6.88	0	7.95	0	0	(2)	NLp18
4' Wrap or Surf	0	Ea	9.17	0	15.90	0	0	(3)	NLp18
2x4 Troffer	0	Ea	11.46	0	25.35	0	0	(4)	NLp18
Total Bare Costs				286		195	\$481		

CONSTRUCTION COST ESTIMATE

Project: Lighting Upgrade
 Location: Pine Bluff Arsenal, AR
 Basis: Pre-Design Study
 Building: 31-010

RS&H No.: 694-1331-001
 Date: 23-Mar-95
 Estimator: W.T.Todd
 Filename: EST-SUMP.WQ1

ITEM DESCRIPTION	QUANTITY		LABOR		MATERIAL		TOTAL COST	SOURCE	
	No.	Unit	\$/Unit	Total	\$/Unit	Total		Labor	Material
Total Bare Costs				286		195	\$481		
Economy of Scale			-20.0%	-57		0	(57)	MEp360	
Subtotal				229		195	424		
City Cost Index			-30.1%	-69	-3.5%	-7	(76)	MEp388	MEp388
Subtotal				160		188	348		
OH & Profit Markups			50.0%	80	10.0%	19	99	MEpIBC	MEp3
Subtotal				240		207	447		
Sales Taxes				0	6.5%	13	13		PBA
Subtotal				240		220	460		
Contingency			10.0%	24	10.0%	22	46	MEp4	MEp4
Subtotal				264		242	506		
Design Fee	6.0%			30		0	30	PBA	
SIOH	6.0%			30		0	30	PBA	
Total Const. Cost				324		242	\$566		

LEGEND & NOTES

- Labor costs based on Means manhour estimates and labor rate (\$27.50/hr).
- DGSC Defense General Supply Center, February 1994 Catalog.
- GRp### Grainger Catalog No. 385, page ###, x 0.80 for contr price.
- MBp### Means Building Construction Cost Data, 1994, page ###.
- MEp### Means Electrical Cost Data, 1994, page ###.
- NLp### National Lighting Maintenance Supply Corp., 1995, page ###.
- OS/SYL Telephone quote from Osram/Sylvania representative.
- PBA Information provided by Pine Bluff Arsenal staff.
- (1) Assume lampholder removal takes 5 minutes each.
 - (2) Assume 15 minutes for installation of reflector.
 - (3) Assume 20 minutes for installation of reflector.
 - (4) Assume 25 minutes for installation of reflector.

CONSTRUCTION COST ESTIMATE

Project: Lighting Upgrade
 Location: Pine Bluff Arsenal, AR
 Basis: Pre-Design Study
 Building: 31-080

RS&H No.: 694-1331-001
 Date: 23-Mar-95
 Estimator: W.T.Todd
 Filename: EST-SUMP.WQ1

ITEM DESCRIPTION	QUANTITY		LABOR		MATERIAL		TOTAL COST	SOURCE	
	No.	Unit	\$/Unit	Total	\$/Unit	Total		Labor	Material
Fixture Removal									
2x2 UTF or Inc Surf	0	Ea	10.01	0	0.00	0	0	MEp17	N/A
2x4 FI Troffer	0	Ea	14.66	0	0.00	0	0	MEp17	N/A
4' FI Surf Strip	0	Ea	9.79	0	0.00	0	0	MEp18	N/A
4' FI Surf Wrap	0	Ea	13.34	0	0.00	0	0	MEp17	N/A
4' FI Pend Indust	0	Ea	12.57	0	0.00	0	0	MEp18	N/A
8' FI Pend Indust	0	Ea	16.31	0	0.00	0	0	MEp18	N/A
8' FI Surf Strip	0	Ea	11.00	0	0.00	0	0	MEp18	N/A
Low Bay Fixture	0	Ea	22.00	0	0.00	0	0	MEp18	N/A
High Bay Fixture	0	Ea	29.34	0	0.00	0	0	MEp18	N/A
Repair Plas Ceiling	0	SF	0.63	0	0.37	0	0	MBp229	MBp229
Inst. Ceiling Tile	0	SF	0.36	0	0.72	0	0	MBp237	MBp237
Fixture Installation									
11" Srf, 2-26W CFL	0	Ea	27.50	0	79.95	0	0	MEp209	NLp12
High Bay, 1-100W MH	0	Ea	95.65	0	186.27	0	0	MEp208	GRp923
4', 1 Lamp Indust.	0	Ea	36.99	0	52.34	0	0	MEp208	GRp918
4', 2 Lamp Indust.	0	Ea	38.61	0	53.24	0	0	MEp208	GRp917
4', 2 Lmp Ind w/Refl	0	Ea	38.61	0	58.24	0	0	MEp208	GRp918
4', 1 Lamp Strip	0	Ea	25.88	0	44.18	0	0	MEp208	GRp915
4', 2 Lamp Strip	0	Ea	27.50	0	47.99	0	0	MEp208	NLp15
2x4, 2 Lamp Surf Mt	0	Ea	35.48	0	76.04	0	0	MEp208	MEp208
2x4, 2 Lamp Troffer	0	Ea	41.50	0	58.99	0	0	MEp207	NLp15
4', 2 Lamp WA	0	Ea	31.43	0	56.54	0	0	MEp208	NLp15
4', 2 Lamp WA Wet	0	Ea	68.75	0	84.04	0	0	MEp210	MEp210
4', 2 Lamp WA w/Refl	0	Ea	31.43	0	75.54	0	0	MEp208	NLp15
4', 4 Lamp WA	0	Ea	41.50	0	71.58	0	0	MEp208	NLp15
8', 2 Lamp Indust.	0	Ea	50.00	0	84.44	0	0	MEp208	GRp917
Fixture Upgrades									
Remove Incand Lamps	0	Ea	1.38	0	0.00	0	0	MEp215	N/A
Install Integral CF									
15W w/ Elec Bal	0	Ea	1.38	0	19.95	0	0	MEp215	NLp9
20W w/ Elec Bal	0	Ea	1.38	0	19.95	0	0	MEp215	NLp9
23W w/ Elec Bal	0	Ea	1.38	0	19.95	0	0	MEp215	NLp9
28W w/ Mag Bal	0	Ea	1.38	0	29.95	0	0	MEp215	NLp10
Remove Fluor Lamps	90	Ea	1.83	165	0.00	0	165	MEp13	N/A
Remove Ballasts	45	Ea	11.00	495	0.00	0	495	MEp211	N/A
Remove Lampholders	22	Ea	2.29	50	0.00	0	50	(1)	N/A
Install T8 Lamps									
F32T8/TL70/35K	68	Ea	1.83	124	2.02	137	261	MEp13	DGSC
F96T8/TL70/35K	0	Ea	1.83	0	6.40	0	0	MEp13	OS/SYL
FB32T8/TL70/35K	0	Ea	1.83	0	9.34	0	0	MEp13	DGSC
Install T8 Ballasts									
2-F32T8 Lamps	14	Ea	11.00	154	22.50	315	469	MEp211	OS/SYL
3-F32T8 Lamps	0	Ea	11.00	0	23.50	0	0	MEp211	OS/SYL
4-F32T8 Lamps	10	Ea	11.00	110	24.50	245	355	MEp211	OS/SYL
2-F96T8 Lamps	0	Ea	11.00	0	35.00	0	0	MEp211	OS/SYL
Install Reflectors									
4' Strp or Indst	0	Ea	6.88	0	7.95	0	0	(2)	NLp18
4' Wrap or Surf	0	Ea	9.17	0	15.90	0	0	(3)	NLp18
2x4 Troffer	0	Ea	11.46	0	25.35	0	0	(4)	NLp18
Total Bare Costs				1098		697	\$1,795		

CONSTRUCTION COST ESTIMATE

Project: Lighting Upgrade
 Location: Pine Bluff Arsenal, AR
 Basis: Pre-Design Study
 Building: 31-080

RS&H No.: 694-1331-001
 Date: 23-Mar-95
 Estimator: W.T.Todd
 Filename: EST-SUMP.WQ1

ITEM DESCRIPTION	QUANTITY		LABOR		MATERIAL		TOTAL COST	SOURCE	
	No.	Unit	\$/Unit	Total	\$/Unit	Total		Labor	Material
Total Bare Costs				1098		697	\$1,795		
Economy of Scale			-20.0%	-220		0	(220)	MEp360	
Subtotal				878		697	1,575		
City Cost Index			-30.1%	-264	-3.5%	-24	(288)	MEp388	MEp388
Subtotal				614		673	1,287		
OH & Profit Markups			50.0%	307	10.0%	67	374	MEpIBC	MEp3
Subtotal				921		740	1,661		
Sales Taxes				0	6.5%	48	48		PBA
Subtotal				921		788	1,709		
Contingency			10.0%	92	10.0%	79	171	MEp4	MEp4
Subtotal				1013		867	1,880		
Design Fee	6.0%			113		0	113	PBA	
SIOH	6.0%			113		0	113	PBA	
Total Const. Cost				1239		867	\$2,106		

LEGEND & NOTES

Labor costs based on Means manhour estimates and labor rate (\$27.50/hr).

DGSC Defense General Supply Center, February 1994 Catalog.

GRp### Grainger Catalog No. 385, page ###, x 0.80 for contr price.

MBp### Means Building Construction Cost Data, 1994, page ###.

MEp### Means Electrical Cost Data, 1994, page ###.

NLp### National Lighting Maintenance Supply Corp., 1995, page ###.

OS/SYL Telephone quote from Osram/Sylvania representative.

PBA Information provided by Pine Bluff Arsenal staff.

(1) Assume lampholder removal takes 5 minutes each.

(2) Assume 15 minutes for installation of reflector.

(3) Assume 20 minutes for installation of reflector.

(4) Assume 25 minutes for installation of reflector.

CONSTRUCTION COST ESTIMATE

Project: Lighting Upgrade
 Location: Pine Bluff Arsenal, AR
 Basis: Pre-Design Study
 Building: 32-030

RS&H No.: 694-1331-001
 Date: 23-Mar-95
 Estimator: W.T.Todd
 Filename: EST-SUMP.WQ1

ITEM DESCRIPTION	QUANTITY		LABOR		MATERIAL		TOTAL COST	SOURCE	
	No.	Unit	\$/Unit	Total	\$/Unit	Total		Labor	Material
Fixture Removal									
2x2 UTF or Inc Surf	0	Ea	10.01	0	0.00	0	0	MEp17	N/A
2x4 FI Troffer	0	Ea	14.66	0	0.00	0	0	MEp17	N/A
4' FI Surf Strip	0	Ea	9.79	0	0.00	0	0	MEp18	N/A
4' FI Surf Wrap	0	Ea	13.34	0	0.00	0	0	MEp17	N/A
4' FI Pend Indust	0	Ea	12.57	0	0.00	0	0	MEp18	N/A
8' FI Pend Indust	0	Ea	16.31	0	0.00	0	0	MEp18	N/A
8' FI Surf Strip	0	Ea	11.00	0	0.00	0	0	MEp18	N/A
Low Bay Fixture	15	Ea	22.00	330	0.00	0	330	MEp18	N/A
High Bay Fixture	0	Ea	29.34	0	0.00	0	0	MEp18	N/A
Repair Plas Ceiling	0	SF	0.63	0	0.37	0	0	MBp229	MBp229
Inst. Ceiling Tile	0	SF	0.36	0	0.72	0	0	MBp237	MBp237
Fixture Installation									
11" Srf, 2-26W CFL	0	Ea	27.50	0	79.95	0	0	MEp209	NLp12
High Bay, 1-100W MH	0	Ea	95.65	0	186.27	0	0	MEp208	GRp923
4', 1 Lamp Indust.	0	Ea	36.99	0	52.34	0	0	MEp208	GRp918
4', 2 Lamp Indust.	0	Ea	38.61	0	53.24	0	0	MEp208	GRp917
4', 2 Lmp Ind w/Refl	0	Ea	38.61	0	58.24	0	0	MEp208	GRp918
4', 1 Lamp Strip	0	Ea	25.88	0	44.18	0	0	MEp208	GRp915
4', 2 Lamp Strip	0	Ea	27.50	0	47.99	0	0	MEp208	NLp15
2x4, 2 Lamp Surf Mt	0	Ea	35.48	0	76.04	0	0	MEp208	MEp208
2x4, 2 Lamp Troffer	0	Ea	41.50	0	58.99	0	0	MEp207	NLp15
4', 2 Lamp WA	0	Ea	31.43	0	56.54	0	0	MEp208	NLp15
4', 2 Lamp WA Wet	0	Ea	68.75	0	84.04	0	0	MEp210	MEp210
4', 2 Lamp WA w/Refl	0	Ea	31.43	0	75.54	0	0	MEp208	NLp15
4', 4 Lamp WA	0	Ea	41.50	0	71.58	0	0	MEp208	NLp15
8', 2 Lamp Indust.	22	Ea	50.00	1100	84.44	1858	2,958	MEp208	GRp917
Fixture Upgrades									
Remove Incand Lamps	0	Ea	1.38	0	0.00	0	0	MEp215	N/A
Install Integral CF									
15W w/ Elec Bal	0	Ea	1.38	0	19.95	0	0	MEp215	NLp9
20W w/ Elec Bal	0	Ea	1.38	0	19.95	0	0	MEp215	NLp9
23W w/ Elec Bal	0	Ea	1.38	0	19.95	0	0	MEp215	NLp9
28W w/ Mag Bal	0	Ea	1.38	0	29.95	0	0	MEp215	NLp10
Remove Fluor Lamps	8	Ea	1.83	15	0.00	0	15	MEp13	N/A
Remove Ballasts	4	Ea	11.00	44	0.00	0	44	MEp211	N/A
Remove Lampholders	0	Ea	2.29	0	0.00	0	0	(1)	N/A
Install T8 Lamps									
F32T8/TL70/35K	8	Ea	1.83	15	2.02	16	31	MEp13	DGSC
F96T8/TL70/35K	0	Ea	1.83	0	6.40	0	0	MEp13	OS/SYL
FB32T8/TL70/35K	0	Ea	1.83	0	9.34	0	0	MEp13	DGSC
Install T8 Ballasts									
2-F32T8 Lamps	4	Ea	11.00	44	22.50	90	134	MEp211	OS/SYL
3-F32T8 Lamps	0	Ea	11.00	0	23.50	0	0	MEp211	OS/SYL
4-F32T8 Lamps	0	Ea	11.00	0	24.50	0	0	MEp211	OS/SYL
2-F96T8 Lamps	0	Ea	11.00	0	35.00	0	0	MEp211	OS/SYL
Install Reflectors									
4' Strp or Indst	0	Ea	6.88	0	7.95	0	0	(2)	NLp18
4' Wrap or Surf	0	Ea	9.17	0	15.90	0	0	(3)	NLp18
2x4 Troffer	0	Ea	11.46	0	25.35	0	0	(4)	NLp18
Total Bare Costs				1548		1964	\$3,512		

CONSTRUCTION COST ESTIMATE

Project: Lighting Upgrade
 Location: Pine Bluff Arsenal, AR
 Basis: Pre-Design Study
 Building: 32-030

RS&H No.: 694-1331-001
 Date: 23-Mar-95
 Estimator: W.T.Todd
 Filename: EST-SUMP.WQ1

ITEM DESCRIPTION	QUANTITY		LABOR		MATERIAL		TOTAL COST	SOURCE	
	No.	Unit	\$/Unit	Total	\$/Unit	Total		Labor	Material
Total Bare Costs				1548		1964	\$3,512		
Economy of Scale			-20.0%	-310		0	(310)	MEp360	
Subtotal				1238		1964	3,202		
City Cost Index			-30.1%	-373	-3.5%	-69	(442)	MEp388	MEp388
Subtotal				865		1895	2,760		
OH & Profit Markups			50.0%	433	10.0%	190	623	MEpIBC	MEp3
Subtotal				1298		2085	3,383		
Sales Taxes				0	6.5%	136	136		PBA
Subtotal				1298		2221	3,519		
Contingency			10.0%	130	10.0%	222	352	MEp4	MEp4
Subtotal				1428		2443	3,871		
Design Fee	6.0%			232		0	232	PBA	
SIOH	6.0%			232		0	232	PBA	
Total Const. Cost				1892		2443	\$4,335		

LEGEND & NOTES

- Labor costs based on Means manhour estimates and labor rate (\$27.50/hr).
- DGSC Defense General Supply Center, February 1994 Catalog.
- GRp### Grainger Catalog No. 385, page ###, x 0.80 for contr price.
- MBp### Means Building Construction Cost Data, 1994, page ###.
- MEp### Means Electrical Cost Data, 1994, page ###.
- NLp### National Lighting Maintenance Supply Corp., 1995, page ###.
- OS/SYL Telephone quote from Osram/Sylvania representative.
- PBA Information provided by Pine Bluff Arsenal staff.
- (1) Assume lampholder removal takes 5 minutes each.
 - (2) Assume 15 minutes for installation of reflector.
 - (3) Assume 20 minutes for installation of reflector.
 - (4) Assume 25 minutes for installation of reflector.

CONSTRUCTION COST ESTIMATE

Project: Lighting Upgrade
 Location: Pine Bluff Arsenal, AR
 Basis: Pre-Design Study
 Building: 32-035

RS&H No.: 694-1331-001
 Date: 23-Mar-95
 Estimator: W.T.Todd
 Filename: EST-SUMP.WQ1

ITEM DESCRIPTION	QUANTITY		LABOR		MATERIAL		TOTAL COST	SOURCE	
	No.	Unit	\$/Unit	Total	\$/Unit	Total		Labor	Material
Fixture Removal									
2x2 UTF or Inc Surf	0	Ea	10.01	0	0.00	0	0	MEp17	N/A
2x4 FI Troffer	0	Ea	14.66	0	0.00	0	0	MEp17	N/A
4' FI Surf Strip	0	Ea	9.79	0	0.00	0	0	MEp18	N/A
4' FI Surf Wrap	0	Ea	13.34	0	0.00	0	0	MEp17	N/A
4' FI Pend Indust	0	Ea	12.57	0	0.00	0	0	MEp18	N/A
8' FI Pend Indust	0	Ea	16.31	0	0.00	0	0	MEp18	N/A
8' FI Surf Strip	0	Ea	11.00	0	0.00	0	0	MEp18	N/A
Low Bay Fixture	0	Ea	22.00	0	0.00	0	0	MEp18	N/A
High Bay Fixture	0	Ea	29.34	0	0.00	0	0	MEp18	N/A
Repair Plas Ceiling	0	SF	0.63	0	0.37	0	0	MBp229	MBp229
Inst. Ceiling Tile	0	SF	0.36	0	0.72	0	0	MBp237	MBp237
Fixture Installation									
11" Srf, 2-26W CFL	0	Ea	27.50	0	79.95	0	0	MEp209	NLp12
High Bay, 1-100W MH	0	Ea	95.65	0	186.27	0	0	MEp208	GRp923
4', 1 Lamp Indust.	0	Ea	36.99	0	52.34	0	0	MEp208	GRp918
4', 2 Lamp Indust.	0	Ea	38.61	0	53.24	0	0	MEp208	GRp917
4', 2 Lmp Ind w/Refl	0	Ea	38.61	0	58.24	0	0	MEp208	GRp918
4', 1 Lamp Strip	0	Ea	25.88	0	44.18	0	0	MEp208	GRp915
4', 2 Lamp Strip	0	Ea	27.50	0	47.99	0	0	MEp208	NLp15
2x4, 2 Lamp Surf Mt	0	Ea	35.48	0	76.04	0	0	MEp208	MEp208
2x4, 2 Lamp Troffer	0	Ea	41.50	0	58.99	0	0	MEp207	NLp15
4', 2 Lamp WA	0	Ea	31.43	0	56.54	0	0	MEp208	NLp15
4', 2 Lamp WA Wet	0	Ea	68.75	0	84.04	0	0	MEp210	MEp210
4', 2 Lamp WA w/Refl	0	Ea	31.43	0	75.54	0	0	MEp208	NLp15
4', 4 Lamp WA	0	Ea	41.50	0	71.58	0	0	MEp208	NLp15
8', 2 Lamp Indust.	0	Ea	50.00	0	84.44	0	0	MEp208	GRp917
Fixture Upgrades									
Remove Incand Lamps	0	Ea	1.38	0	0.00	0	0	MEp215	N/A
Install Integral CF									
15W w/ Elec Bal	0	Ea	1.38	0	19.95	0	0	MEp215	NLp9
20W w/ Elec Bal	0	Ea	1.38	0	19.95	0	0	MEp215	NLp9
23W w/ Elec Bal	0	Ea	1.38	0	19.95	0	0	MEp215	NLp9
28W w/ Mag Bal	0	Ea	1.38	0	29.95	0	0	MEp215	NLp10
Remove Fluor Lamps	504	Ea	1.83	922	0.00	0	922	MEp13	N/A
Remove Ballasts	252	Ea	11.00	2772	0.00	0	2,772	MEp211	N/A
Remove Lampholders	0	Ea	2.29	0	0.00	0	0	(1)	N/A
Install T8 Lamps									
F32T8/TL70/35K	504	Ea	1.83	922	2.02	1018	1,940	MEp13	DGSC
F96T8/TL70/35K	0	Ea	1.83	0	6.40	0	0	MEp13	OS/SYL
FB32T8/TL70/35K	0	Ea	1.83	0	9.34	0	0	MEp13	DGSC
Install T8 Ballasts									
2-F32T8 Lamps	252	Ea	11.00	2772	22.50	5670	8,442	MEp211	OS/SYL
3-F32T8 Lamps	0	Ea	11.00	0	23.50	0	0	MEp211	OS/SYL
4-F32T8 Lamps	0	Ea	11.00	0	24.50	0	0	MEp211	OS/SYL
2-F96T8 Lamps	0	Ea	11.00	0	35.00	0	0	MEp211	OS/SYL
Install Reflectors									
4' Strp or Indst	0	Ea	6.88	0	7.95	0	0	(2)	NLp18
4' Wrap or Surf	0	Ea	9.17	0	15.90	0	0	(3)	NLp18
2x4 Troffer	0	Ea	11.46	0	25.35	0	0	(4)	NLp18
Total Bare Costs				7388		6688	\$14,076		

CONSTRUCTION COST ESTIMATE

Project: Lighting Upgrade
 Location: Pine Bluff Arsenal, AR
 Basis: Pre-Design Study
 Building: 32-035

RS&H No.: 694-1331-001
 Date: 23-Mar-95
 Estimator: W.T.Todd
 Filename: EST-SUMP.WQ1

ITEM DESCRIPTION	QUANTITY		LABOR		MATERIAL		TOTAL COST	SOURCE	
	No.	Unit	\$/Unit	Total	\$/Unit	Total		Labor	Material
Total Bare Costs				7388		6688	\$14,076		
Economy of Scale			-20.0%	-1478		0	(1,478)	MEp360	
Subtotal				5910		6688	12,598		
City Cost Index			-30.1%	-1779	-3.5%	-234	(2,013)	MEp388	MEp388
Subtotal				4131		6454	10,585		
OH & Profit Markups			50.0%	2066	10.0%	645	2,711	MEpIBC	MEp3
Subtotal				6197		7099	13,296		
Sales Taxes				0	6.5%	462	462		PBA
Subtotal				6197		7561	13,758		
Contingency			10.0%	620	10.0%	756	1,376	MEp4	MEp4
Subtotal				6817		8317	15,134		
Design Fee	6.0%			908		0	908	PBA	
SIOH	6.0%			908		0	908	PBA	
Total Const. Cost				8633		8317	\$16,950		

LEGEND & NOTES

Labor costs based on Means manhour estimates and labor rate (\$27.50/hr).

DGSC Defense General Supply Center, February 1994 Catalog.

GRp### Grainger Catalog No. 385, page ###, x 0.80 for contr price.

MBp### Means Building Construction Cost Data, 1994, page ###.

MEp### Means Electrical Cost Data, 1994, page ###.

NLp### National Lighting Maintenance Supply Corp., 1995, page ###.

OS/SYL Telephone quote from Osram/Sylvania representative.

PBA Information provided by Pine Bluff Arsenal staff.

(1) Assume lampholder removal takes 5 minutes each.

(2) Assume 15 minutes for installation of reflector.

(3) Assume 20 minutes for installation of reflector.

(4) Assume 25 minutes for installation of reflector.

CONSTRUCTION COST ESTIMATE

Project: Lighting Upgrade
 Location: Pine Bluff Arsenal, AR
 Basis: Pre-Design Study
 Building: 32-060

RS&H No.: 694-1331-001
 Date: 23-Mar-95
 Estimator: W.T.Todd
 Filename: EST-SUMP.WQ1

ITEM DESCRIPTION	QUANTITY		LABOR		MATERIAL		TOTAL COST	SOURCE	
	No.	Unit	\$/Unit	Total	\$/Unit	Total		Labor	Material
Fixture Removal									
2x2 UTF or Inc Surf	0	Ea	10.01	0	0.00	0	0	MEp17	N/A
2x4 FI Troffer	0	Ea	14.66	0	0.00	0	0	MEp17	N/A
4' FI Surf Strip	0	Ea	9.79	0	0.00	0	0	MEp18	N/A
4' FI Surf Wrap	0	Ea	13.34	0	0.00	0	0	MEp17	N/A
4' FI Pend Indust	0	Ea	12.57	0	0.00	0	0	MEp18	N/A
8' FI Pend Indust	0	Ea	16.31	0	0.00	0	0	MEp18	N/A
8' FI Surf Strip	0	Ea	11.00	0	0.00	0	0	MEp18	N/A
Low Bay Fixture	0	Ea	22.00	0	0.00	0	0	MEp18	N/A
High Bay Fixture	0	Ea	29.34	0	0.00	0	0	MEp18	N/A
Repair Plas Ceiling	0	SF	0.63	0	0.37	0	0	MBp229	MBp229
Inst. Ceiling Tile	0	SF	0.36	0	0.72	0	0	MBp237	MBp237
Fixture Installation									
11" Srf, 2-26W CFL	0	Ea	27.50	0	79.95	0	0	MEp209	NLp12
High Bay, 1-100W MH	0	Ea	95.65	0	186.27	0	0	MEp208	GRp923
4', 1 Lamp Indust.	0	Ea	36.99	0	52.34	0	0	MEp208	GRp918
4', 2 Lamp Indust.	0	Ea	38.61	0	53.24	0	0	MEp208	GRp917
4', 2 Lmp Ind w/Refl	0	Ea	38.61	0	58.24	0	0	MEp208	GRp918
4', 1 Lamp Strip	0	Ea	25.88	0	44.18	0	0	MEp208	GRp915
4', 2 Lamp Strip	0	Ea	27.50	0	47.99	0	0	MEp208	NLp15
2x4, 2 Lamp Surf Mt	0	Ea	35.48	0	76.04	0	0	MEp208	MEp208
2x4, 2 Lamp Troffer	0	Ea	41.50	0	58.99	0	0	MEp207	NLp15
4', 2 Lamp WA	0	Ea	31.43	0	56.54	0	0	MEp208	NLp15
4', 2 Lamp WA Wet	0	Ea	68.75	0	84.04	0	0	MEp210	MEp210
4', 2 Lamp WA w/Refl	0	Ea	31.43	0	75.54	0	0	MEp208	NLp15
4', 4 Lamp WA	0	Ea	41.50	0	71.58	0	0	MEp208	NLp15
8', 2 Lamp Indust.	0	Ea	50.00	0	84.44	0	0	MEp208	GRp917
Fixture Upgrades									
Remove Incand Lamps	0	Ea	1.38	0	0.00	0	0	MEp215	N/A
Install Integral CF									
15W w/ Elec Bal	0	Ea	1.38	0	19.95	0	0	MEp215	NLp9
20W w/ Elec Bal	0	Ea	1.38	0	19.95	0	0	MEp215	NLp9
23W w/ Elec Bal	0	Ea	1.38	0	19.95	0	0	MEp215	NLp9
28W w/ Mag Bal	0	Ea	1.38	0	29.95	0	0	MEp215	NLp10
Remove Fluor Lamps	21	Ea	1.83	38	0.00	0	38	MEp13	N/A
Remove Ballasts	12	Ea	11.00	132	0.00	0	132	MEp211	N/A
Remove Lampholders	0	Ea	2.29	0	0.00	0	0	(1)	N/A
Install T8 Lamps									
F32T8/TL70/35K	9	Ea	1.83	16	2.02	18	34	MEp13	DGSC
F96T8/TL70/35K	12	Ea	1.83	22	6.40	77	99	MEp13	OS/SYL
FB32T8/TL70/35K	0	Ea	1.83	0	9.34	0	0	MEp13	DGSC
Install T8 Ballasts									
2-F32T8 Lamps	0	Ea	11.00	0	22.50	0	0	MEp211	OS/SYL
3-F32T8 Lamps	3	Ea	11.00	33	23.50	71	104	MEp211	OS/SYL
4-F32T8 Lamps	0	Ea	11.00	0	24.50	0	0	MEp211	OS/SYL
2-F96T8 Lamps	6	Ea	11.00	66	35.00	210	276	MEp211	OS/SYL
Install Reflectors									
4' Strp or Indst	0	Ea	6.88	0	7.95	0	0	(2)	NLp18
4' Wrap or Surf	0	Ea	9.17	0	15.90	0	0	(3)	NLp18
2x4 Troffer	0	Ea	11.46	0	25.35	0	0	(4)	NLp18
Total Bare Costs				307		376	\$683		

CONSTRUCTION COST ESTIMATE

Project: Lighting Upgrade
Location: Pine Bluff Arsenal, AR
Basis: Pre-Design Study
Building: 32-060

RS&H No.: 694-1331-001
Date: 23-Mar-95
Estimator: W.T.Todd
Filename: EST-SUMP.WQ1

[illegible]

LEGEND & NOTES

Labor costs based on Means manhour estimates and labor rate (\$27.50/hr).

DGSC Defense General Supply Center, February 1994 Catalog.

GRp### Grainger Catalog No. 385, page ###, x 0.80 for contr price.

MBp### Means Building Construction Cost Data, 1994, page ###.

MEp### Means Electrical Cost Data, 1994, page ###.

NLP### National Lighting Maintenance Supply Corp., 1995, page ###.

OS/SYL Telephone quote from Osram/Sylvania representative.

Information provided by Pine Bluff Arsenal staff.

(1) Assume lampholder removal takes 5 minutes each.

(2) Assume 15 minutes for installation of reflector.

(3) Assume 20 minutes for installation of reflector.

(4) Assume 25 minutes for installation of reflector.

CONSTRUCTION COST ESTIMATE

Project: Lighting Upgrade
 Location: Pine Bluff Arsenal, AR
 Basis: Pre-Design Study
 Building: 32-070

RS&H No.: 694-1331-001
 Date: 23-Mar-95
 Estimator: W.T.Todd
 Filename: EST-SUMP.WQ1

ITEM DESCRIPTION	QUANTITY		LABOR		MATERIAL		TOTAL COST	SOURCE	
	No.	Unit	\$/Unit	Total	\$/Unit	Total		Labor	Material
Fixture Removal									
2x2 UTF or Inc Surf	0	Ea	10.01	0	0.00	0	0	MEp17	N/A
2x4 FI Troffer	0	Ea	14.66	0	0.00	0	0	MEp17	N/A
4' FI Surf Strip	0	Ea	9.79	0	0.00	0	0	MEp18	N/A
4' FI Surf Wrap	0	Ea	13.34	0	0.00	0	0	MEp17	N/A
4' FI Pend Indust	0	Ea	12.57	0	0.00	0	0	MEp18	N/A
8' FI Pend Indust	1	Ea	16.31	16	0.00	0	16	MEp18	N/A
8' FI Surf Strip	0	Ea	11.00	0	0.00	0	0	MEp18	N/A
Low Bay Fixture	0	Ea	22.00	0	0.00	0	0	MEp18	N/A
High Bay Fixture	0	Ea	29.34	0	0.00	0	0	MEp18	N/A
Repair Plas Ceiling	0	SF	0.63	0	0.37	0	0	MBp229	MBp229
Inst. Ceiling Tile	0	SF	0.36	0	0.72	0	0	MBp237	MBp237
Fixture Installation									
11" Srf, 2-26W CFL	0	Ea	27.50	0	79.95	0	0	MEp209	NLp12
High Bay, 1-100W MH	0	Ea	95.65	0	186.27	0	0	MEp208	GRp923
4', 1 Lamp Indust.	0	Ea	36.99	0	52.34	0	0	MEp208	GRp918
4', 2 Lamp Indust.	0	Ea	38.61	0	53.24	0	0	MEp208	GRp917
4', 2 Lmp Ind w/Refl	0	Ea	38.61	0	58.24	0	0	MEp208	GRp918
4', 1 Lamp Strip	0	Ea	25.88	0	44.18	0	0	MEp208	GRp915
4', 2 Lamp Strip	0	Ea	27.50	0	47.99	0	0	MEp208	NLp15
2x4, 2 Lamp Surf Mt	0	Ea	35.48	0	76.04	0	0	MEp208	MEp208
2x4, 2 Lamp Troffer	0	Ea	41.50	0	58.99	0	0	MEp207	NLp15
4', 2 Lamp WA	0	Ea	31.43	0	56.54	0	0	MEp208	NLp15
4', 2 Lamp WA Wet	0	Ea	68.75	0	84.04	0	0	MEp210	MEp210
4', 2 Lamp WA w/Refl	0	Ea	31.43	0	75.54	0	0	MEp208	NLp15
4', 4 Lamp WA	0	Ea	41.50	0	71.58	0	0	MEp208	NLp15
8', 2 Lamp Indust.	0	Ea	50.00	0	84.44	0	0	MEp208	GRp917
Fixture Upgrades									
Remove Incand Lamps	0	Ea	1.38	0	0.00	0	0	MEp215	N/A
Install Integral CF									
15W w/ Elec Bal	0	Ea	1.38	0	19.95	0	0	MEp215	NLp9
20W w/ Elec Bal	0	Ea	1.38	0	19.95	0	0	MEp215	NLp9
23W w/ Elec Bal	0	Ea	1.38	0	19.95	0	0	MEp215	NLp9
28W w/ Mag Bal	0	Ea	1.38	0	29.95	0	0	MEp215	NLp10
Remove Fluor Lamps	212	Ea	1.83	388	0.00	0	388	MEp13	N/A
Remove Ballasts	106	Ea	11.00	1166	0.00	0	1,166	MEp211	N/A
Remove Lampholders	0	Ea	2.29	0	0.00	0	0	(1)	N/A
Install T8 Lamps									
F32T8/TL70/35K	12	Ea	1.83	22	2.02	24	46	MEp13	DGSC
F96T8/TL70/35K	200	Ea	1.83	366	6.40	1280	1,646	MEp13	OS/SYL
FB32T8/TL70/35K	0	Ea	1.83	0	9.34	0	0	MEp13	DGSC
Install T8 Ballasts									
2-F32T8 Lamps	0	Ea	11.00	0	22.50	0	0	MEp211	OS/SYL
3-F32T8 Lamps	0	Ea	11.00	0	23.50	0	0	MEp211	OS/SYL
4-F32T8 Lamps	3	Ea	11.00	33	24.50	74	107	MEp211	OS/SYL
2-F96T8 Lamps	100	Ea	11.00	1100	35.00	3500	4,600	MEp211	OS/SYL
Install Reflectors									
4' Strp or Indst	0	Ea	6.88	0	7.95	0	0	(2)	NLp18
4' Wrap or Surf	0	Ea	9.17	0	15.90	0	0	(3)	NLp18
2x4 Troffer	0	Ea	11.46	0	25.35	0	0	(4)	NLp18
Total Bare Costs				3091		4878	\$7,969		

CONSTRUCTION COST ESTIMATE

Project: Lighting Upgrade
 Location: Pine Bluff Arsenal, AR
 Basis: Pre-Design Study
 Building: 32-070

RS&H No.: 694-1331-001
 Date: 23-Mar-95
 Estimator: W.T.Todd
 Filename: EST-SUMP.WQ1

ITEM DESCRIPTION	QUANTITY		LABOR		MATERIAL		TOTAL COST	SOURCE	
	No.	Unit	\$/Unit	Total	\$/Unit	Total		Labor	Material
Total Bare Costs				3091		4878	\$7,969		
Economy of Scale			-20.0%	-618		0	(618)	MEp360	
Subtotal				2473		4878	7,351		
City Cost Index			-30.1%	-744	-3.5%	-171	(915)	MEp388	MEp388
Subtotal				1729		4707	6,436		
OH & Profit Markups			50.0%	865	10.0%	471	1,336	MEpIBC	MEp3
Subtotal				2594		5178	7,772		
Sales Taxes				0	6.5%	337	337		PBA
Subtotal				2594		5515	8,109		
Contingency			10.0%	259	10.0%	552	811	MEp4	MEp4
Subtotal				2853		6067	8,920		
Design Fee	6.0%			535		0	535	PBA	
SIOH	6.0%			535		0	535	PBA	
Total Const. Cost				3923		6067	\$9,990		

LEGEND & NOTES

Labor costs based on Means manhour estimates and labor rate (\$27.50/hr).

DGSC Defense General Supply Center, February 1994 Catalog.

GRp### Grainger Catalog No. 385, page ###, x 0.80 for contr price.

MBp### Means Building Construction Cost Data, 1994, page ###.

MEp### Means Electrical Cost Data, 1994, page ###.

NLp### National Lighting Maintenance Supply Corp., 1995, page ###.

OS/SYL Telephone quote from Osram/Sylvania representative.

PBA Information provided by Pine Bluff Arsenal staff.

(1) Assume lampholder removal takes 5 minutes each.

(2) Assume 15 minutes for installation of reflector.

(3) Assume 20 minutes for installation of reflector.

(4) Assume 25 minutes for installation of reflector.

CONSTRUCTION COST ESTIMATE

Project: Lighting Upgrade
 Location: Pine Bluff Arsenal, AR
 Basis: Pre-Design Study
 Building: 32-090

RS&H No.: 694-1331-001
 Date: 23-Mar-95
 Estimator: W.T.Todd
 Filename: EST-SUMP.WQ1

ITEM DESCRIPTION	QUANTITY		LABOR		MATERIAL		TOTAL COST	SOURCE	
	No.	Unit	\$/Unit	Total	\$/Unit	Total		Labor	Material
Fixture Removal									
2x2 UTF or Inc Surf	0	Ea	10.01	0	0.00	0	0	MEp17	N/A
2x4 FI Troffer	0	Ea	14.66	0	0.00	0	0	MEp17	N/A
4' FI Surf Strip	0	Ea	9.79	0	0.00	0	0	MEp18	N/A
4' FI Surf Wrap	0	Ea	13.34	0	0.00	0	0	MEp17	N/A
4' FI Pend Indust	0	Ea	12.57	0	0.00	0	0	MEp18	N/A
8' FI Pend Indust	0	Ea	16.31	0	0.00	0	0	MEp18	N/A
8' FI Surf Strip	0	Ea	11.00	0	0.00	0	0	MEp18	N/A
Low Bay Fixture	0	Ea	22.00	0	0.00	0	0	MEp18	N/A
High Bay Fixture	0	Ea	29.34	0	0.00	0	0	MEp18	N/A
Repair Plas Ceiling	0	SF	0.63	0	0.37	0	0	MBp229	MBp229
Inst. Ceiling Tile	0	SF	0.36	0	0.72	0	0	MBp237	MBp237
Fixture Installation									
11" Srf, 2-26W CFL	0	Ea	27.50	0	79.95	0	0	MEp209	NLp12
High Bay, 1-100W MH	0	Ea	95.65	0	186.27	0	0	MEp208	GRp923
4', 1 Lamp Indust.	0	Ea	36.99	0	52.34	0	0	MEp208	GRp918
4', 2 Lamp Indust.	0	Ea	38.61	0	53.24	0	0	MEp208	GRp917
4', 2 Lmp Ind w/Refl	0	Ea	38.61	0	58.24	0	0	MEp208	GRp918
4', 1 Lamp Strip	0	Ea	25.88	0	44.18	0	0	MEp208	GRp915
4', 2 Lamp Strip	0	Ea	27.50	0	47.99	0	0	MEp208	NLp15
2x4, 2 Lamp Surf Mt	0	Ea	35.48	0	76.04	0	0	MEp208	MEp208
2x4, 2 Lamp Troffer	0	Ea	41.50	0	58.99	0	0	MEp207	NLp15
4', 2 Lamp WA	0	Ea	31.43	0	56.54	0	0	MEp208	NLp15
4', 2 Lamp WA Wet	0	Ea	68.75	0	84.04	0	0	MEp210	MEp210
4', 2 Lamp WA w/Refl	0	Ea	31.43	0	75.54	0	0	MEp208	NLp15
4', 4 Lamp WA	0	Ea	41.50	0	71.58	0	0	MEp208	NLp15
8', 2 Lamp Indust.	0	Ea	50.00	0	84.44	0	0	MEp208	GRp917
Fixture Upgrades									
Remove Incand Lamps	0	Ea	1.38	0	0.00	0	0	MEp215	N/A
Install Integral CF									
15W w/ Elec Bal	0	Ea	1.38	0	19.95	0	0	MEp215	NLp9
20W w/ Elec Bal	0	Ea	1.38	0	19.95	0	0	MEp215	NLp9
23W w/ Elec Bal	0	Ea	1.38	0	19.95	0	0	MEp215	NLp9
28W w/ Mag Bal	0	Ea	1.38	0	29.95	0	0	MEp215	NLp10
Remove Fluor Lamps	240	Ea	1.83	439	0.00	0	439	MEp13	N/A
Remove Ballasts	120	Ea	11.00	1320	0.00	0	1,320	MEp211	N/A
Remove Lampholders	118	Ea	2.29	270	0.00	0	270	(1)	N/A
Install T8 Lamps									
F32T8/TL70/35K	122	Ea	1.83	223	2.02	246	469	MEp13	DGSC
F96T8/TL70/35K	0	Ea	1.83	0	6.40	0	0	MEp13	OS/SYL
FB32T8/TL70/35K	0	Ea	1.83	0	9.34	0	0	MEp13	DGSC
Install T8 Ballasts									
2-F32T8 Lamps	59	Ea	11.00	649	22.50	1328	1,977	MEp211	OS/SYL
3-F32T8 Lamps	0	Ea	11.00	0	23.50	0	0	MEp211	OS/SYL
4-F32T8 Lamps	1	Ea	11.00	11	24.50	25	36	MEp211	OS/SYL
2-F96T8 Lamps	0	Ea	11.00	0	35.00	0	0	MEp211	OS/SYL
Install Reflectors									
4' Strp or Indst	0	Ea	6.88	0	7.95	0	0	(2)	NLp18
4' Wrap or Surf	24	Ea	9.17	220	15.90	382	602	(3)	NLp18
2x4 Troffer	0	Ea	11.46	0	25.35	0	0	(4)	NLp18
Total Bare Costs				3132		1981	\$5,113		

CONSTRUCTION COST ESTIMATE

Project: Lighting Upgrade
 Location: Pine Bluff Arsenal, AR
 Basis: Pre-Design Study
 Building: 32-090

RS&H No.: 694-1331-001
 Date: 23-Mar-95
 Estimator: W.T.Todd
 Filename: EST-SUMP.WQ1

ITEM DESCRIPTION	QUANTITY		LABOR		MATERIAL		TOTAL COST	SOURCE	
	No.	Unit	\$/Unit	Total	\$/Unit	Total		Labor	Material
Total Bare Costs				3132		1981	\$5,113		
Economy of Scale			-20.0%	-626		0	(626)	MEp360	
Subtotal				2506		1981	4,487		
City Cost Index			-30.1%	-754	-3.5%	-69	(823)	MEp388	MEp388
Subtotal				1752		1912	3,664		
OH & Profit Markups			50.0%	876	10.0%	191	1,067	MEpIBC	MEp3
Subtotal				2628		2103	4,731		
Sales Taxes				0	6.5%	137	137		PBA
Subtotal				2628		2240	4,868		
Contingency			10.0%	263	10.0%	224	487	MEp4	MEp4
Subtotal				2891		2464	5,355		
Design Fee	6.0%			321		0	321	PBA	
SIOH	6.0%			321		0	321	PBA	
Total Const. Cost				3533		2464	\$5,997		

LEGEND & NOTES

Labor costs based on Means manhour estimates and labor rate (\$27.50/hr).

DGSC Defense General Supply Center, February 1994 Catalog.

GRp### Grainger Catalog No. 385, page ###, x 0.80 for contr price.

MBp### Means Building Construction Cost Data, 1994, page ###.

MEp### Means Electrical Cost Data, 1994, page ###.

NLP### National Lighting Maintenance Supply Corp., 1995, page ###.

OS/SYL Telephone quote from Osram/Sylvania representative.

PBA Information provided by Pine Bluff Arsenal staff.

(1) Assume lampholder removal takes 5 minutes each.

(2) Assume 15 minutes for installation of reflector.

(3) Assume 20 minutes for installation of reflector.

(4) Assume 25 minutes for installation of reflector.

CONSTRUCTION COST ESTIMATE

Project: Lighting Upgrade
 Location: Pine Bluff Arsenal, AR
 Basis: Pre-Design Study
 Building: 32-090

RS&H No.: 694-1331-001
 Date: 23-Mar-95
 Estimator: W.T.Todd
 Filename: EST-SUMP.WQ1

ITEM DESCRIPTION	QUANTITY		LABOR		MATERIAL		TOTAL COST	SOURCE	
	No.	Unit	\$/Unit	Total	\$/Unit	Total		Labor	Material
Total Bare Costs				3132		1981	\$5,113		
Economy of Scale			-20.0%	-626		0	(626)	MEp360	
Subtotal				2506		1981	4,487		
City Cost Index			-30.1%	-754	-3.5%	-69	(823)	MEp388	MEp388
Subtotal				1752		1912	3,664		
OH & Profit Markups			50.0%	876	10.0%	191	1,067	MEpIBC	MEp3
Subtotal				2628		2103	4,731		
Sales Taxes				0	6.5%	137	137		PBA
Subtotal				2628		2240	4,868		
Contingency			10.0%	263	10.0%	224	487	MEp4	MEp4
Subtotal				2891		2464	5,355		
Design Fee	6.0%			321		0	321	PBA	
SIOH	6.0%			321		0	321	PBA	
Total Const. Cost				3533		2464	\$5,997		

LEGEND & NOTES

- Labor costs based on Means manhour estimates and labor rate (\$27.50/hr).
 DGSC Defense General Supply Center, February 1994 Catalog.
 GRp### Grainger Catalog No. 385, page ###, x 0.80 for contr price.
 MBp### Means Building Construction Cost Data, 1994, page ###.
 MEp### Means Electrical Cost Data, 1994, page ###.
 NLp### National Lighting Maintenance Supply Corp., 1995, page ###.
 OS/SYL Telephone quote from Osram/Sylvania representative.
 PBA Information provided by Pine Bluff Arsenal staff.
 (1) Assume lampholder removal takes 5 minutes each.
 (2) Assume 15 minutes for installation of reflector.
 (3) Assume 20 minutes for installation of reflector.
 (4) Assume 25 minutes for installation of reflector.

CONSTRUCTION COST ESTIMATE

Project: Lighting Upgrade
 Location: Pine Bluff Arsenal, AR
 Basis: Pre-Design Study
 Building: 32-100

RS&H No.: 694-1331-001
 Date: 23-Mar-95
 Estimator: W.T.Todd
 Filename: EST-SUMP.WQ1

ITEM DESCRIPTION	QUANTITY		LABOR		MATERIAL		TOTAL COST	SOURCE	
	No.	Unit	\$/Unit	Total	\$/Unit	Total		Labor	Material
Fixture Removal									
2x2 UTF or Inc Surf	0	Ea	10.01	0	0.00	0	0	MEp17	N/A
2x4 FI Troffer	0	Ea	14.66	0	0.00	0	0	MEp17	N/A
4' FI Surf Strip	0	Ea	9.79	0	0.00	0	0	MEp18	N/A
4' FI Surf Wrap	3	Ea	13.34	40	0.00	0	40	MEp17	N/A
4' FI Pend Indust	0	Ea	12.57	0	0.00	0	0	MEp18	N/A
8' FI Pend Indust	0	Ea	16.31	0	0.00	0	0	MEp18	N/A
8' FI Surf Strip	0	Ea	11.00	0	0.00	0	0	MEp18	N/A
Low Bay Fixture	0	Ea	22.00	0	0.00	0	0	MEp18	N/A
High Bay Fixture	0	Ea	29.34	0	0.00	0	0	MEp18	N/A
Repair Plas Ceiling	3	SF	0.63	2	0.37	1	3	MBp229	MBp229
Inst. Ceiling Tile	0	SF	0.36	0	0.72	0	0	MBp237	MBp237
Fixture Installation									
11" Srf, 2-26W CFL	0	Ea	27.50	0	79.95	0	0	MEp209	NLp12
High Bay, 1-100W MH	0	Ea	95.65	0	186.27	0	0	MEp208	GRp923
4', 1 Lamp Indust.	0	Ea	36.99	0	52.34	0	0	MEp208	GRp918
4', 2 Lamp Indust.	0	Ea	38.61	0	53.24	0	0	MEp208	GRp917
4', 2 Lmp Ind w/Refl	0	Ea	38.61	0	58.24	0	0	MEp208	GRp918
4', 1 Lamp Strip	0	Ea	25.88	0	44.18	0	0	MEp208	GRp915
4', 2 Lamp Strip	0	Ea	27.50	0	47.99	0	0	MEp208	NLp15
2x4, 2 Lamp Surf Mt	0	Ea	35.48	0	76.04	0	0	MEp208	MEp208
2x4, 2 Lamp Troffer	0	Ea	41.50	0	58.99	0	0	MEp207	NLp15
4', 2 Lamp WA	0	Ea	31.43	0	56.54	0	0	MEp208	NLp15
4', 2 Lamp WA Wet	0	Ea	68.75	0	84.04	0	0	MEp210	MEp210
4', 2 Lamp WA w/Refl	0	Ea	31.43	0	75.54	0	0	MEp208	NLp15
4', 4 Lamp WA	0	Ea	41.50	0	71.58	0	0	MEp208	NLp15
8', 2 Lamp Indust.	0	Ea	50.00	0	84.44	0	0	MEp208	GRp917
Fixture Upgrades									
Remove Incand Lamps	0	Ea	1.38	0	0.00	0	0	MEp215	N/A
Install Integral CF									
15W w/ Elec Bal	0	Ea	1.38	0	19.95	0	0	MEp215	NLp9
20W w/ Elec Bal	0	Ea	1.38	0	19.95	0	0	MEp215	NLp9
23W w/ Elec Bal	0	Ea	1.38	0	19.95	0	0	MEp215	NLp9
28W w/ Mag Bal	0	Ea	1.38	0	29.95	0	0	MEp215	NLp10
Remove Fluor Lamps	464	Ea	1.83	849	0.00	0	849	MEp13	N/A
Remove Ballasts	232	Ea	11.00	2552	0.00	0	2,552	MEp211	N/A
Remove Lampholders	188	Ea	2.29	431	0.00	0	431	(1)	N/A
Install T8 Lamps									
F32T8/TL70/35K	190	Ea	1.83	348	2.02	384	732	MEp13	DGSC
F96T8/TL70/35K	80	Ea	1.83	146	6.40	512	658	MEp13	OS/SYL
FB32T8/TL70/35K	12	Ea	1.83	22	9.34	112	134	MEp13	DGSC
Install T8 Ballasts									
2-F32T8 Lamps	86	Ea	11.00	946	22.50	1935	2,881	MEp211	OS/SYL
3-F32T8 Lamps	6	Ea	11.00	66	23.50	141	207	MEp211	OS/SYL
4-F32T8 Lamps	3	Ea	11.00	33	24.50	74	107	MEp211	OS/SYL
2-F96T8 Lamps	40	Ea	11.00	440	35.00	1400	1,840	MEp211	OS/SYL
Install Reflectors									
4' Strp or Indst	0	Ea	6.88	0	7.95	0	0	(2)	NLp18
4' Wrap or Surf	0	Ea	9.17	0	15.90	0	0	(3)	NLp18
2x4 Troffer	3	Ea	11.46	34	25.35	76	110	(4)	NLp18
Total Bare Costs				5909		4635	\$10,544		

CONSTRUCTION COST ESTIMATE

Project: Lighting Upgrade
Location: Pine Bluff Arsenal, AR
Basis: Pre-Design Study
Building: 32-100

RS&H No.: 694-1331-001
Date: 23-Mar-95
Estimator: W.T.Todd
Filename: EST-SUMP.WQ1

[illegible]

LEGEND & NOTES

Labor costs based on Means manhour estimates and labor rate (\$27.50/hr).

DGSC Defense General Supply Center, February 1994 Catalog.

GRp### Grainger Catalog No. 385, page ###, x 0.80 for contr price.

MBP### Means Building Construction Cost Data, 1994, page ###.

MEp### Means Electrical Cost Data, 1994, page ###.

NLP### National Lighting Maintenance Supply Corp., 1995, page ###.

OS/SYL Telephone quote from Osram/Sylvania representative.

Information provided by Pine Bluff Arsenal staff.

- (1) Assume lampholder removal takes 5 minutes each.
- (2) Assume 15 minutes for installation of reflector.
- (3) Assume 20 minutes for installation of reflector.
- (4) Assume 25 minutes for installation of reflector.

CONSTRUCTION COST ESTIMATE

Project: Lighting Upgrade
 Location: Pine Bluff Arsenal, AR
 Basis: Pre-Design Study
 Building: 32-130

RS&H No.: 694-1331-001
 Date: 23-Mar-95
 Estimator: W.T.Todd
 Filename: EST-SUMP.WQ1

ITEM DESCRIPTION	QUANTITY		LABOR		MATERIAL		TOTAL COST	SOURCE	
	No.	Unit	\$/Unit	Total	\$/Unit	Total		Labor	Material
Fixture Removal									
2x2 UTF or Inc Surf	0	Ea	10.01	0	0.00	0	0	MEp17	N/A
2x4 FI Troffer	0	Ea	14.66	0	0.00	0	0	MEp17	N/A
4' FI Surf Strip	0	Ea	9.79	0	0.00	0	0	MEp18	N/A
4' FI Surf Wrap	1	Ea	13.34	13	0.00	0	13	MEp17	N/A
4' FI Pend Indust	0	Ea	12.57	0	0.00	0	0	MEp18	N/A
8' FI Pend Indust	0	Ea	16.31	0	0.00	0	0	MEp18	N/A
8' FI Surf Strip	0	Ea	11.00	0	0.00	0	0	MEp18	N/A
Low Bay Fixture	0	Ea	22.00	0	0.00	0	0	MEp18	N/A
High Bay Fixture	0	Ea	29.34	0	0.00	0	0	MEp18	N/A
Repair Plas Ceiling	1	SF	0.63	1	0.37	0	1	MBp229	MBp229
Inst. Ceiling Tile	0	SF	0.36	0	0.72	0	0	MBp237	MBp237
Fixture Installation									
11" Srf, 2-26W CFL	0	Ea	27.50	0	79.95	0	0	MEp209	NLp12
High Bay, 1-100W MH	0	Ea	95.65	0	186.27	0	0	MEp208	GRp923
4', 1 Lamp Indust.	0	Ea	36.99	0	52.34	0	0	MEp208	GRp918
4', 2 Lamp Indust.	0	Ea	38.61	0	53.24	0	0	MEp208	GRp917
4', 2 Lmp Ind w/Refl	0	Ea	38.61	0	58.24	0	0	MEp208	GRp918
4', 1 Lamp Strip	0	Ea	25.88	0	44.18	0	0	MEp208	GRp915
4', 2 Lamp Strip	0	Ea	27.50	0	47.99	0	0	MEp208	NLp15
2x4, 2 Lamp Surf Mt	0	Ea	35.48	0	76.04	0	0	MEp208	MEp208
2x4, 2 Lamp Troffer	0	Ea	41.50	0	58.99	0	0	MEp207	NLp15
4', 2 Lamp WA	0	Ea	31.43	0	56.54	0	0	MEp208	NLp15
4', 2 Lamp WA Wet	0	Ea	68.75	0	84.04	0	0	MEp210	MEp210
4', 2 Lamp WA w/Refl	0	Ea	31.43	0	75.54	0	0	MEp208	NLp15
4', 4 Lamp WA	0	Ea	41.50	0	71.58	0	0	MEp208	NLp15
8', 2 Lamp Indust.	0	Ea	50.00	0	84.44	0	0	MEp208	GRp917
Fixture Upgrades									
Remove Incand Lamps	2	Ea	1.38	3	0.00	0	3	MEp215	N/A
Install Integral CF									
15W w/ Elec Bal	0	Ea	1.38	0	19.95	0	0	MEp215	NLp9
20W w/ Elec Bal	0	Ea	1.38	0	19.95	0	0	MEp215	NLp9
23W w/ Elec Bal	0	Ea	1.38	0	19.95	0	0	MEp215	NLp9
28W w/ Mag Bal	2	Ea	1.38	3	29.95	60	63	MEp215	NLp10
Remove Fluor Lamps	194	Ea	1.83	355	0.00	0	355	MEp13	N/A
Remove Ballasts	97	Ea	11.00	1067	0.00	0	1,067	MEp211	N/A
Remove Lampholders	96	Ea	2.29	220	0.00	0	220	(1)	N/A
Install T8 Lamps									
F32T8/TL70/35K	98	Ea	1.83	179	2.02	198	377	MEp13	DGSC
F96T8/TL70/35K	0	Ea	1.83	0	6.40	0	0	MEp13	OS/SYL
FB32T8/TL70/35K	0	Ea	1.83	0	9.34	0	0	MEp13	DGSC
Install T8 Ballasts									
2-F32T8 Lamps	49	Ea	11.00	539	22.50	1103	1,642	MEp211	OS/SYL
3-F32T8 Lamps	0	Ea	11.00	0	23.50	0	0	MEp211	OS/SYL
4-F32T8 Lamps	0	Ea	11.00	0	24.50	0	0	MEp211	OS/SYL
2-F96T8 Lamps	0	Ea	11.00	0	35.00	0	0	MEp211	OS/SYL
Install Reflectors									
4' Strp or Indst	0	Ea	6.88	0	7.95	0	0	(2)	NLp18
4' Wrap or Surf	0	Ea	9.17	0	15.90	0	0	(3)	NLp18
2x4 Troffer	0	Ea	11.46	0	25.35	0	0	(4)	NLp18
Total Bare Costs				2380		1361	\$3,741		

CONSTRUCTION COST ESTIMATE

Project: Lighting Upgrade
Location: Pine Bluff Arsenal, AR
Basis: Pre-Design Study
Building: 32-130

RS&H No.: 694-1331-001
Date: 23-Mar-95
Estimator: W.T.Todd
Filename: EST-SUMP.WQ1

[illegible]

LEGEND & NOTES

Labor costs based on Means manhour estimates and labor rate (\$27.50/hr).

DGSC Defense General Supply Center, February 1994 Catalog.

GRp### Grainger Catalog No. 385, page ###, x 0.80 for contr price.

MBp### Means Building Construction Cost Data, 1994, page ###.

MEp### Means Electrical Cost Data, 1994, page ###.

NLP### National Lighting Maintenance Supply Corp., 1995, page ###.

OS/SYL Telephone quote from Osram/Sylvania representative.

PBA Information provided by Pine Bluff Arsenal staff.

- (1) Assume lampholder removal takes 5 minutes each.
- (2) Assume 15 minutes for installation of reflector.
- (3) Assume 20 minutes for installation of reflector.
- (4) Assume 25 minutes for installation of reflector.

CONSTRUCTION COST ESTIMATE

Project: Lighting Upgrade
 Location: Pine Bluff Arsenal, AR
 Basis: Pre-Design Study
 Building: 32-150

RS&H No.: 694-1331-001
 Date: 23-Mar-95
 Estimator: W.T.Todd
 Filename: EST-SUMP.WQ1

ITEM DESCRIPTION	QUANTITY		LABOR		MATERIAL		TOTAL COST	SOURCE	
	No.	Unit	\$/Unit	Total	\$/Unit	Total		Labor	Material
Fixture Removal									
2x2 UTF or Inc Surf	0	Ea	10.01	0	0.00	0	0	MEp17	N/A
2x4 FI Troffer	0	Ea	14.66	0	0.00	0	0	MEp17	N/A
4' FI Surf Strip	0	Ea	9.79	0	0.00	0	0	MEp18	N/A
4' FI Surf Wrap	0	Ea	13.34	0	0.00	0	0	MEp17	N/A
4' FI Pend Indust	0	Ea	12.57	0	0.00	0	0	MEp18	N/A
8' FI Pend Indust	0	Ea	16.31	0	0.00	0	0	MEp18	N/A
8' FI Surf Strip	0	Ea	11.00	0	0.00	0	0	MEp18	N/A
Low Bay Fixture	0	Ea	22.00	0	0.00	0	0	MEp18	N/A
High Bay Fixture	0	Ea	29.34	0	0.00	0	0	MEp18	N/A
Repair Plas Ceiling	0	SF	0.63	0	0.37	0	0	MBp229	MBp229
Inst. Ceiling Tile	0	SF	0.36	0	0.72	0	0	MBp237	MBp237
Fixture Installation									
11" Srf, 2-26W CFL	0	Ea	27.50	0	79.95	0	0	MEp209	NLp12
High Bay, 1-100W MH	0	Ea	95.65	0	186.27	0	0	MEp208	GRp923
4', 1 Lamp Indust.	0	Ea	36.99	0	52.34	0	0	MEp208	GRp918
4', 2 Lamp Indust.	0	Ea	38.61	0	53.24	0	0	MEp208	GRp917
4', 2 Lmp Ind w/Refl	0	Ea	38.61	0	58.24	0	0	MEp208	GRp918
4', 1 Lamp Strip	0	Ea	25.88	0	44.18	0	0	MEp208	GRp915
4', 2 Lamp Strip	0	Ea	27.50	0	47.99	0	0	MEp208	NLp15
2x4, 2 Lamp Surf Mt	0	Ea	35.48	0	76.04	0	0	MEp208	MEp208
2x4, 2 Lamp Troffer	0	Ea	41.50	0	58.99	0	0	MEp207	NLp15
4', 2 Lamp WA	0	Ea	31.43	0	56.54	0	0	MEp208	NLp15
4', 2 Lamp WA Wet	0	Ea	68.75	0	84.04	0	0	MEp210	MEp210
4', 2 Lamp WA w/Refl	0	Ea	31.43	0	75.54	0	0	MEp208	NLp15
4', 4 Lamp WA	0	Ea	41.50	0	71.58	0	0	MEp208	NLp15
8', 2 Lamp Indust.	0	Ea	50.00	0	84.44	0	0	MEp208	GRp917
Fixture Upgrades									
Remove Incand Lamps	0	Ea	1.38	0	0.00	0	0	MEp215	N/A
Install Integral CF									
15W w/ Elec Bal	0	Ea	1.38	0	19.95	0	0	MEp215	NLp9
20W w/ Elec Bal	0	Ea	1.38	0	19.95	0	0	MEp215	NLp9
23W w/ Elec Bal	0	Ea	1.38	0	19.95	0	0	MEp215	NLp9
28W w/ Mag Bal	0	Ea	1.38	0	29.95	0	0	MEp215	NLp10
Remove Fluor Lamps	48	Ea	1.83	88	0.00	0	88	MEp13	N/A
Remove Ballasts	24	Ea	11.00	264	0.00	0	264	MEp211	N/A
Remove Lampholders	0	Ea	2.29	0	0.00	0	0	(1)	N/A
Install T8 Lamps									
F32T8/TL70/35K	48	Ea	1.83	88	2.02	97	185	MEp13	DGSC
F96T8/TL70/35K	0	Ea	1.83	0	6.40	0	0	MEp13	OS/SYL
FB32T8/TL70/35K	0	Ea	1.83	0	9.34	0	0	MEp13	DGSC
Install T8 Ballasts									
2-F32T8 Lamps	24	Ea	11.00	264	22.50	540	804	MEp211	OS/SYL
3-F32T8 Lamps	0	Ea	11.00	0	23.50	0	0	MEp211	OS/SYL
4-F32T8 Lamps	0	Ea	11.00	0	24.50	0	0	MEp211	OS/SYL
2-F96T8 Lamps	0	Ea	11.00	0	35.00	0	0	MEp211	OS/SYL
Install Reflectors									
4' Strp or Indst	0	Ea	6.88	0	7.95	0	0	(2)	NLp18
4' Wrap or Surf	4	Ea	9.17	37	15.90	64	101	(3)	NLp18
2x4 Troffer	0	Ea	11.46	0	25.35	0	0	(4)	NLp18
Total Bare Costs				741		701	\$1,442		

CONSTRUCTION COST ESTIMATE

Project: Lighting Upgrade
 Location: Pine Bluff Arsenal, AR
 Basis: Pre-Design Study
 Building: 32-150

RS&H No.: 694-1331-001
 Date: 23-Mar-95
 Estimator: W.T.Todd
 Filename: EST-SUMP.WQ1

ITEM DESCRIPTION	QUANTITY		LABOR		MATERIAL		TOTAL COST	SOURCE	
	No.	Unit	\$/Unit	Total	\$/Unit	Total		Labor	Material
Total Bare Costs				741		701	\$1,442		
Economy of Scale			-20.0%	-148		0	(148)	MEp360	
Subtotal				593		701	1,294		
City Cost Index			-30.1%	-178	-3.5%	-25	(203)	MEp388	MEp388
Subtotal				415		676	1,091		
OH & Profit Markups			50.0%	208	10.0%	68	276	MEpIBC	MEp3
Subtotal				623		744	1,367		
Sales Taxes				0	6.5%	48	48		PBA
Subtotal				623		792	1,415		
Contingency			10.0%	62	10.0%	79	141	MEp4	MEp4
Subtotal				685		871	1,556		
Design Fee	6.0%			93		0	93	PBA	
SIOH	6.0%			93		0	93	PBA	
Total Const. Cost				871		871	\$1,742		

LEGEND & NOTES

Labor costs based on Means manhour estimates and labor rate (\$27.50/hr).

DGSC Defense General Supply Center, February 1994 Catalog.

GRp### Grainger Catalog No. 385, page ###, x 0.80 for contr price.

MBp### Means Building Construction Cost Data, 1994, page ###.

MEp### Means Electrical Cost Data, 1994, page ###.

NLp### National Lighting Maintenance Supply Corp., 1995, page ###.

OS/SYL Telephone quote from Osram/Sylvania representative.

PBA Information provided by Pine Bluff Arsenal staff.

(1) Assume lampholder removal takes 5 minutes each.

(2) Assume 15 minutes for installation of reflector.

(3) Assume 20 minutes for installation of reflector.

(4) Assume 25 minutes for installation of reflector.

CONSTRUCTION COST ESTIMATE

Project: Lighting Upgrade
 Location: Pine Bluff Arsenal, AR
 Basis: Pre-Design Study
 Building: 33-060

RS&H No.: 694-1331-001
 Date: 23-Mar-95
 Estimator: W.T.Todd
 Filename: EST-SUMP.WQ1

ITEM DESCRIPTION	QUANTITY		LABOR		MATERIAL		TOTAL COST	SOURCE	
	No.	Unit	\$/Unit	Total	\$/Unit	Total		Labor	Material
Fixture Removal									
2x2 UTF or Inc Surf	0	Ea	10.01	0	0.00	0	0	MEp17	N/A
2x4 FI Troffer	0	Ea	14.66	0	0.00	0	0	MEp17	N/A
4' FI Surf Strip	0	Ea	9.79	0	0.00	0	0	MEp18	N/A
4' FI Surf Wrap	0	Ea	13.34	0	0.00	0	0	MEp17	N/A
4' FI Pend Indust	0	Ea	12.57	0	0.00	0	0	MEp18	N/A
8' FI Pend Indust	0	Ea	16.31	0	0.00	0	0	MEp18	N/A
8' FI Surf Strip	0	Ea	11.00	0	0.00	0	0	MEp18	N/A
Low Bay Fixture	0	Ea	22.00	0	0.00	0	0	MEp18	N/A
High Bay Fixture	0	Ea	29.34	0	0.00	0	0	MEp18	N/A
Repair Plas Ceiling	0	SF	0.63	0	0.37	0	0	MBp229	MBp229
Inst. Ceiling Tile	0	SF	0.36	0	0.72	0	0	MBp237	MBp237
Fixture Installation									
11" Srf, 2-26W CFL	0	Ea	27.50	0	79.95	0	0	MEp209	NLp12
High Bay, 1-100W MH	0	Ea	95.65	0	186.27	0	0	MEp208	GRp923
4', 1 Lamp Indust.	0	Ea	36.99	0	52.34	0	0	MEp208	GRp918
4', 2 Lamp Indust.	0	Ea	38.61	0	53.24	0	0	MEp208	GRp917
4', 2 Lmp Ind w/Refl	0	Ea	38.61	0	58.24	0	0	MEp208	GRp918
4', 1 Lamp Strip	0	Ea	25.88	0	44.18	0	0	MEp208	GRp915
4', 2 Lamp Strip	0	Ea	27.50	0	47.99	0	0	MEp208	NLp15
2x4, 2 Lamp Surf Mt	0	Ea	35.48	0	76.04	0	0	MEp208	MEp208
2x4, 2 Lamp Troffer	0	Ea	41.50	0	58.99	0	0	MEp207	NLp15
4', 2 Lamp WA	0	Ea	31.43	0	56.54	0	0	MEp208	NLp15
4', 2 Lamp WA Wet	0	Ea	68.75	0	84.04	0	0	MEp210	MEp210
4', 2 Lamp WA w/Refl	0	Ea	31.43	0	75.54	0	0	MEp208	NLp15
4', 4 Lamp WA	0	Ea	41.50	0	71.58	0	0	MEp208	NLp15
8', 2 Lamp Indust.	0	Ea	50.00	0	84.44	0	0	MEp208	GRp917
Fixture Upgrades									
Remove Incand Lamps	0	Ea	1.38	0	0.00	0	0	MEp215	N/A
Install Integral CF									
15W w/ Elec Bal	0	Ea	1.38	0	19.95	0	0	MEp215	NLp9
20W w/ Elec Bal	0	Ea	1.38	0	19.95	0	0	MEp215	NLp9
23W w/ Elec Bal	0	Ea	1.38	0	19.95	0	0	MEp215	NLp9
28W w/ Mag Bal	0	Ea	1.38	0	29.95	0	0	MEp215	NLp10
Remove Fluor Lamps	21	Ea	1.83	38	0.00	0	38	MEp13	N/A
Remove Ballasts	12	Ea	11.00	132	0.00	0	132	MEp211	N/A
Remove Lampholders	0	Ea	2.29	0	0.00	0	0	(1)	N/A
Install T8 Lamps									
F32T8/TL70/35K	9	Ea	1.83	16	2.02	18	34	MEp13	DGSC
F96T8/TL70/35K	12	Ea	1.83	22	6.40	77	99	MEp13	OS/SYL
FB32T8/TL70/35K	0	Ea	1.83	0	9.34	0	0	MEp13	DGSC
Install T8 Ballasts									
2-F32T8 Lamps	0	Ea	11.00	0	22.50	0	0	MEp211	OS/SYL
3-F32T8 Lamps	3	Ea	11.00	33	23.50	71	104	MEp211	OS/SYL
4-F32T8 Lamps	0	Ea	11.00	0	24.50	0	0	MEp211	OS/SYL
2-F96T8 Lamps	6	Ea	11.00	66	35.00	210	276	MEp211	OS/SYL
Install Reflectors									
4' Strp or Indst	0	Ea	6.88	0	7.95	0	0	(2)	NLp18
4' Wrap or Surf	0	Ea	9.17	0	15.90	0	0	(3)	NLp18
2x4 Troffer	0	Ea	11.46	0	25.35	0	0	(4)	NLp18
Total Bare Costs				307		376	\$683		

CONSTRUCTION COST ESTIMATE

Project: Lighting Upgrade
Location: Pine Bluff Arsenal, AR
Basis: Pre-Design Study
Building: 33-060

RS&H No.: 694-1331-001
Date: 23-Mar-95
Estimator: W.T.Todd
Filename: EST-SUMP.WQ1

[illegible]

LEGEND & NOTES

Labor costs based on Means manhour estimates and labor rate (\$27.50/hr).

DGSC Defense General Supply Center, February 1994 Catalog.

GRp### Grainger Catalog No. 385, page ###, x 0.80 for contr price.

MBp### Means Building Construction Cost Data, 1994, page ###.

MEp### Means Electrical Cost Data, 1994, page ###.

NLP### National Lighting Maintenance Supply Corp., 1995, page ###.

OS/SYL Telephone quote from Osram/Sylvania representative.

PBA Information provided by Pine Bluff Arsenal staff.

- (1) Assume lampholder removal takes 5 minutes each.
- (2) Assume 15 minutes for installation of reflector.
- (3) Assume 20 minutes for installation of reflector.
- (4) Assume 25 minutes for installation of reflector.

CONSTRUCTION COST ESTIMATE

Project: Lighting Upgrade
 Location: Pine Bluff Arsenal, AR
 Basis: Pre-Design Study
 Building: 33-530

RS&H No.: 694-1331-001
 Date: 23-Mar-95
 Estimator: W.T.Todd
 Filename: EST-SUMP.WQ1

ITEM DESCRIPTION	QUANTITY		LABOR		MATERIAL		TOTAL COST	SOURCE	
	No.	Unit	\$/Unit	Total	\$/Unit	Total		Labor	Material
Fixture Removal									
2x2 UTF or Inc Surf	0	Ea	10.01	0	0.00	0	0	MEp17	N/A
2x4 FI Troffer	0	Ea	14.66	0	0.00	0	0	MEp17	N/A
4' FI Surf Strip	0	Ea	9.79	0	0.00	0	0	MEp18	N/A
4' FI Surf Wrap	0	Ea	13.34	0	0.00	0	0	MEp17	N/A
4' FI Pend Indust	0	Ea	12.57	0	0.00	0	0	MEp18	N/A
8' FI Pend Indust	0	Ea	16.31	0	0.00	0	0	MEp18	N/A
8' FI Surf Strip	0	Ea	11.00	0	0.00	0	0	MEp18	N/A
Low Bay Fixture	83	Ea	22.00	1826	0.00	0	1,826	MEp18	N/A
High Bay Fixture	0	Ea	29.34	0	0.00	0	0	MEp18	N/A
Repair Plas Ceiling	0	SF	0.63	0	0.37	0	0	MBp229	MBp229
Inst. Ceiling Tile	0	SF	0.36	0	0.72	0	0	MBp237	MBp237
Fixture Installation									
11" Srf, 2-26W CFL	0	Ea	27.50	0	79.95	0	0	MEp209	NLp12
High Bay, 1-100W MH	0	Ea	95.65	0	186.27	0	0	MEp208	GRp923
4', 1 Lamp Indust.	0	Ea	36.99	0	52.34	0	0	MEp208	GRp918
4', 2 Lamp Indust.	73	Ea	38.61	2819	53.24	3887	6,706	MEp208	GRp917
4', 2 Lmp Ind w/Refl	0	Ea	38.61	0	58.24	0	0	MEp208	GRp918
4', 1 Lamp Strip	0	Ea	25.88	0	44.18	0	0	MEp208	GRp915
4', 2 Lamp Strip	0	Ea	27.50	0	47.99	0	0	MEp208	NLp15
2x4, 2 Lamp Surf Mt	0	Ea	35.48	0	76.04	0	0	MEp208	MEp208
2x4, 2 Lamp Troffer	0	Ea	41.50	0	58.99	0	0	MEp207	NLp15
4', 2 Lamp WA	0	Ea	31.43	0	56.54	0	0	MEp208	NLp15
4', 2 Lamp WA Wet	0	Ea	68.75	0	84.04	0	0	MEp210	MEp210
4', 2 Lamp WA w/Refl	0	Ea	31.43	0	75.54	0	0	MEp208	NLp15
4', 4 Lamp WA	0	Ea	41.50	0	71.58	0	0	MEp208	NLp15
8', 2 Lamp Indust.	0	Ea	50.00	0	84.44	0	0	MEp208	GRp917
Fixture Upgrades									
Remove Incand Lamps	0	Ea	1.38	0	0.00	0	0	MEp215	N/A
Install Integral CF									
15W w/ Elec Bal	0	Ea	1.38	0	19.95	0	0	MEp215	NLp9
20W w/ Elec Bal	0	Ea	1.38	0	19.95	0	0	MEp215	NLp9
23W w/ Elec Bal	0	Ea	1.38	0	19.95	0	0	MEp215	NLp9
28W w/ Mag Bal	0	Ea	1.38	0	29.95	0	0	MEp215	NLp10
Remove Fluor Lamps	0	Ea	1.83	0	0.00	0	0	MEp13	N/A
Remove Ballasts	0	Ea	11.00	0	0.00	0	0	MEp211	N/A
Remove Lampholders	0	Ea	2.29	0	0.00	0	0	(1)	N/A
Install T8 Lamps									
F32T8/TL70/35K	0	Ea	1.83	0	2.02	0	0	MEp13	DGSC
F96T8/TL70/35K	0	Ea	1.83	0	6.40	0	0	MEp13	OS/SYL
FB32T8/TL70/35K	0	Ea	1.83	0	9.34	0	0	MEp13	DGSC
Install T8 Ballasts									
2-F32T8 Lamps	0	Ea	11.00	0	22.50	0	0	MEp211	OS/SYL
3-F32T8 Lamps	0	Ea	11.00	0	23.50	0	0	MEp211	OS/SYL
4-F32T8 Lamps	0	Ea	11.00	0	24.50	0	0	MEp211	OS/SYL
2-F96T8 Lamps	0	Ea	11.00	0	35.00	0	0	MEp211	OS/SYL
Install Reflectors									
4' Strp or Indst	0	Ea	6.88	0	7.95	0	0	(2)	NLp18
4' Wrap or Surf	0	Ea	9.17	0	15.90	0	0	(3)	NLp18
2x4 Troffer	0	Ea	11.46	0	25.35	0	0	(4)	NLp18
Total Bare Costs				4645		3887	\$8,532		

CONSTRUCTION COST ESTIMATE

Project: Lighting Upgrade
Location: Pine Bluff Arsenal, AR
Basis: Pre-Design Study
Building: 33-530

RS&H No.: 694-1331-001
Date: 23-Mar-95
Estimator: W.T.Todd
Filename: EST-SUMP.WQ1

[illegible]

LEGEND & NOTES

Labor costs based on Means manhour estimates and labor rate (\$27.50/hr).

DGSC Defense General Supply Center, February 1994 Catalog.

GRp### Grainger Catalog No. 385, page ###, x 0.80 for contr price.

MBP### Means Building Construction Cost Data, 1994, page ###.

MEp### Means Electrical Cost Data, 1994, page ###.

NLP### National Lighting Maintenance Supply Corp., 1995, page ###.

OS/SYL Telephone quote from Osram/Sylvania representative.

Information provided by Pine Bluff Arsenal staff.

- (1) Assume lampholder removal takes 5 minutes each.
- (2) Assume 15 minutes for installation of reflector.
- (3) Assume 20 minutes for installation of reflector.
- (4) Assume 25 minutes for installation of reflector.

CONSTRUCTION COST ESTIMATE

Project: Lighting Upgrade
 Location: Pine Bluff Arsenal, AR
 Basis: Pre-Design Study
 Building: 34-110

RS&H No.: 694-1331-001
 Date: 23-Mar-95
 Estimator: W.T.Todd
 Filename: EST-SUMP.WQ1

ITEM DESCRIPTION	QUANTITY		LABOR		MATERIAL		TOTAL COST	SOURCE	
	No.	Unit	\$/Unit	Total	\$/Unit	Total		Labor	Material
Fixture Removal									
2x2 UTF or Inc Surf	0	Ea	10.01	0	0.00	0	0	MEp17	N/A
2x4 FI Troffer	0	Ea	14.66	0	0.00	0	0	MEp17	N/A
4' FI Surf Strip	0	Ea	9.79	0	0.00	0	0	MEp18	N/A
4' FI Surf Wrap	0	Ea	13.34	0	0.00	0	0	MEp17	N/A
4' FI Pend Indust	0	Ea	12.57	0	0.00	0	0	MEp18	N/A
8' FI Pend Indust	0	Ea	16.31	0	0.00	0	0	MEp18	N/A
8' FI Surf Strip	0	Ea	11.00	0	0.00	0	0	MEp18	N/A
Low Bay Fixture	0	Ea	22.00	0	0.00	0	0	MEp18	N/A
High Bay Fixture	0	Ea	29.34	0	0.00	0	0	MEp18	N/A
Repair Plas Ceiling	0	SF	0.63	0	0.37	0	0	MBp229	MBp229
Inst. Ceiling Tile	0	SF	0.36	0	0.72	0	0	MBp237	MBp237
Fixture Installation									
11" Srf, 2-26W CFL	0	Ea	27.50	0	79.95	0	0	MEp209	NLp12
High Bay, 1-100W MH	0	Ea	95.65	0	186.27	0	0	MEp208	GRp923
4', 1 Lamp Indust.	0	Ea	36.99	0	52.34	0	0	MEp208	GRp918
4', 2 Lamp Indust.	0	Ea	38.61	0	53.24	0	0	MEp208	GRp917
4', 2 Lmp Ind w/Refl	0	Ea	38.61	0	58.24	0	0	MEp208	GRp918
4', 1 Lamp Strip	0	Ea	25.88	0	44.18	0	0	MEp208	GRp915
4', 2 Lamp Strip	0	Ea	27.50	0	47.99	0	0	MEp208	NLp15
2x4, 2 Lamp Surf Mt	0	Ea	35.48	0	76.04	0	0	MEp208	MEp208
2x4, 2 Lamp Troffer	0	Ea	41.50	0	58.99	0	0	MEp207	NLp15
4', 2 Lamp WA	0	Ea	31.43	0	56.54	0	0	MEp208	NLp15
4', 2 Lamp WA Wet	0	Ea	68.75	0	84.04	0	0	MEp210	MEp210
4', 2 Lamp WA w/Refl	0	Ea	31.43	0	75.54	0	0	MEp208	NLp15
4', 4 Lamp WA	0	Ea	41.50	0	71.58	0	0	MEp208	NLp15
8', 2 Lamp Indust.	0	Ea	50.00	0	84.44	0	0	MEp208	GRp917
Fixture Upgrades									
Remove Incand Lamps	0	Ea	1.38	0	0.00	0	0	MEp215	N/A
Install Integral CF									
15W w/ Elec Bal	0	Ea	1.38	0	19.95	0	0	MEp215	NLp9
20W w/ Elec Bal	0	Ea	1.38	0	19.95	0	0	MEp215	NLp9
23W w/ Elec Bal	0	Ea	1.38	0	19.95	0	0	MEp215	NLp9
28W w/ Mag Bal	0	Ea	1.38	0	29.95	0	0	MEp215	NLp10
Remove Fluor Lamps	1218	Ea	1.83	2229	0.00	0	2,229	MEp13	N/A
Remove Ballasts	609	Ea	11.00	6699	0.00	0	6,699	MEp211	N/A
Remove Lampholders	40	Ea	2.29	92	0.00	0	92	(1)	N/A
Install T8 Lamps									
F32T8/TL70/35K	1158	Ea	1.83	2119	2.02	2339	4,458	MEp13	DGSC
F96T8/TL70/35K	20	Ea	1.83	37	6.40	128	165	MEp13	OS/SYL
FB32T8/TL70/35K	0	Ea	1.83	0	9.34	0	0	MEp13	DGSC
Install T8 Ballasts									
2-F32T8 Lamps	579	Ea	11.00	6369	22.50	13028	19,397	MEp211	OS/SYL
3-F32T8 Lamps	0	Ea	11.00	0	23.50	0	0	MEp211	OS/SYL
4-F32T8 Lamps	0	Ea	11.00	0	24.50	0	0	MEp211	OS/SYL
2-F96T8 Lamps	10	Ea	11.00	110	35.00	350	460	MEp211	OS/SYL
Install Reflectors									
4' Strp or Indst	0	Ea	6.88	0	7.95	0	0	(2)	NLp18
4' Wrap or Surf	0	Ea	9.17	0	15.90	0	0	(3)	NLp18
2x4 Troffer	0	Ea	11.46	0	25.35	0	0	(4)	NLp18
Total Bare Costs				17655		15845	\$33,500		

CONSTRUCTION COST ESTIMATE

Project: Lighting Upgrade
Location: Pine Bluff Arsenal, AR
Basis: Pre-Design Study
Building: 34-110

RS&H No.: 694-1331-001
Date: 23-Mar-95
Estimator: W.T.Todd
Filename: EST-SUMP.WQ1

[illegible]

LEGEND & NOTES

Labor costs based on Means manhour estimates and labor rate (\$27.50/hr).

DGSC Defense General Supply Center, February 1994 Catalog.

GRp### Grainger Catalog No. 385, page ###, x 0.80 for contr price.

MBp### Means Building Construction Cost Data, 1994, page ###.

MEP### Means Electrical Cost Data, 1994, page ###.

NLP### National Lighting Maintenance Supply Corp., 1995, page ###.

OS/SYL Telephone quote from Osram/Sylvania representative.

PBA Information provided by Pine Bluff Arsenal staff.

- (1) Assume lampholder removal takes 5 minutes each.
- (2) Assume 15 minutes for installation of reflector.
- (3) Assume 20 minutes for installation of reflector.
- (4) Assume 25 minutes for installation of reflector.

CONSTRUCTION COST ESTIMATE

Project: Lighting Upgrade
 Location: Pine Bluff Arsenal, AR
 Basis: Pre-Design Study
 Building: 34-120

RS&H No.: 694-1331-001
 Date: 23-Mar-95
 Estimator: W.T.Todd
 Filename: EST-SUMP.WQ1

ITEM DESCRIPTION	QUANTITY		LABOR		MATERIAL		TOTAL COST	SOURCE	
	No.	Unit	\$/Unit	Total	\$/Unit	Total		Labor	Material
Fixture Removal									
2x2 UTF or Inc Surf	0	Ea	10.01	0	0.00	0	0	MEp17	N/A
2x4 FI Troffer	4	Ea	14.66	59	0.00	0	59	MEp17	N/A
4' FI Surf Strip	0	Ea	9.79	0	0.00	0	0	MEp18	N/A
4' FI Surf Wrap	0	Ea	13.34	0	0.00	0	0	MEp17	N/A
4' FI Pend Indust	0	Ea	12.57	0	0.00	0	0	MEp18	N/A
8' FI Pend Indust	0	Ea	16.31	0	0.00	0	0	MEp18	N/A
8' FI Surf Strip	0	Ea	11.00	0	0.00	0	0	MEp18	N/A
Low Bay Fixture	32	Ea	22.00	704	0.00	0	704	MEp18	N/A
High Bay Fixture	0	Ea	29.34	0	0.00	0	0	MEp18	N/A
Repair Plas Ceiling	0	SF	0.63	0	0.37	0	0	MBp229	MBp229
Inst. Ceiling Tile	32	SF	0.36	12	0.72	23	35	MBp237	MBp237
Fixture Installation									
11" Srf, 2-26W CFL	0	Ea	27.50	0	79.95	0	0	MEp209	NLp12
High Bay, 1-100W MH	0	Ea	95.65	0	186.27	0	0	MEp208	GRp923
4', 1 Lamp Indust.	0	Ea	36.99	0	52.34	0	0	MEp208	GRp918
4', 2 Lamp Indust.	21	Ea	38.61	811	53.24	1118	1,929	MEp208	GRp917
4', 2 Lmp Ind w/Refl	0	Ea	38.61	0	58.24	0	0	MEp208	GRp918
4', 1 Lamp Strip	0	Ea	25.88	0	44.18	0	0	MEp208	GRp915
4', 2 Lamp Strip	0	Ea	27.50	0	47.99	0	0	MEp208	NLp15
2x4, 2 Lamp Surf Mt	0	Ea	35.48	0	76.04	0	0	MEp208	MEp208
2x4, 2 Lamp Troffer	0	Ea	41.50	0	58.99	0	0	MEp207	NLp15
4', 2 Lamp WA	0	Ea	31.43	0	56.54	0	0	MEp208	NLp15
4', 2 Lamp WA Wet	0	Ea	68.75	0	84.04	0	0	MEp210	MEp210
4', 2 Lamp WA w/Refl	0	Ea	31.43	0	75.54	0	0	MEp208	NLp15
4', 4 Lamp WA	0	Ea	41.50	0	71.58	0	0	MEp208	NLp15
8', 2 Lamp Indust.	0	Ea	50.00	0	84.44	0	0	MEp208	GRp917
Fixture Upgrades									
Remove Incand Lamps	0	Ea	1.38	0	0.00	0	0	MEp215	N/A
Install Integral CF									
15W w/ Elec Bal	0	Ea	1.38	0	19.95	0	0	MEp215	NLp9
20W w/ Elec Bal	0	Ea	1.38	0	19.95	0	0	MEp215	NLp9
23W w/ Elec Bal	0	Ea	1.38	0	19.95	0	0	MEp215	NLp9
28W w/ Mag Bal	0	Ea	1.38	0	29.95	0	0	MEp215	NLp10
Remove Fluor Lamps	111	Ea	1.83	203	0.00	0	203	MEp13	N/A
Remove Ballasts	73	Ea	11.00	803	0.00	0	803	MEp211	N/A
Remove Lampholders	34	Ea	2.29	78	0.00	0	78	(1)	N/A
Install T8 Lamps									
F32T8/TL70/35K	94	Ea	1.83	172	2.02	190	362	MEp13	DGSC
F96T8/TL70/35K	0	Ea	1.83	0	6.40	0	0	MEp13	OS/SYL
FB32T8/TL70/35K	0	Ea	1.83	0	9.34	0	0	MEp13	DGSC
Install T8 Ballasts									
2-F32T8 Lamps	24	Ea	11.00	264	22.50	540	804	MEp211	OS/SYL
3-F32T8 Lamps	16	Ea	11.00	176	23.50	376	552	MEp211	OS/SYL
4-F32T8 Lamps	0	Ea	11.00	0	24.50	0	0	MEp211	OS/SYL
2-F96T8 Lamps	0	Ea	11.00	0	35.00	0	0	MEp211	OS/SYL
Install Reflectors									
4' Strp or Indst	0	Ea	6.88	0	7.95	0	0	(2)	NLp18
4' Wrap or Surf	0	Ea	9.17	0	15.90	0	0	(3)	NLp18
2x4 Troffer	14	Ea	11.46	160	25.35	355	515	(4)	NLp18
Total Bare Costs				3442		2602	\$6,044		

CONSTRUCTION COST ESTIMATE

Project: Lighting Upgrade
 Location: Pine Bluff Arsenal, AR
 Basis: Pre-Design Study
 Building: 34-120

RS&H No.: 694-1331-001
 Date: 23-Mar-95
 Estimator: W.T.Todd
 Filename: EST-SUMP.WQ1

ITEM DESCRIPTION	QUANTITY		LABOR		MATERIAL		TOTAL COST	SOURCE	
	No.	Unit	\$/Unit	Total	\$/Unit	Total		Labor	Material
Total Bare Costs				3442		2602	\$6,044		
Economy of Scale			-20.0%	-688		0	(688)	MEp360	
Subtotal				2754		2602	5,356		
City Cost Index			-30.1%	-829	-3.5%	-91	(920)	MEp388	MEp388
Subtotal				1925		2511	4,436		
OH & Profit Markups			50.0%	963	10.0%	251	1,214	MEpIBC	MEp3
Subtotal				2888		2762	5,650		
Sales Taxes				0	6.5%	180	180		PBA
Subtotal				2888		2942	5,830		
Contingency			10.0%	289	10.0%	294	583	MEp4	MEp4
Subtotal				3177		3236	6,413		
Design Fee	6.0%			385		0	385	PBA	
SIOH	6.0%			385		0	385	PBA	
Total Const. Cost				3947		3236	\$7,183		

LEGEND & NOTES

Labor costs based on Means manhour estimates and labor rate (\$27.50/hr).

DGSC Defense General Supply Center, February 1994 Catalog.

GRp### Grainger Catalog No. 385, page ###, x 0.80 for contr price.

MBp### Means Building Construction Cost Data, 1994, page ###.

MEp### Means Electrical Cost Data, 1994, page ###.

NLp### National Lighting Maintenance Supply Corp., 1995, page ###.

OS/SYL Telephone quote from Osram/Sylvania representative.

PBA Information provided by Pine Bluff Arsenal staff.

(1) Assume lampholder removal takes 5 minutes each.

(2) Assume 15 minutes for installation of reflector.

(3) Assume 20 minutes for installation of reflector.

(4) Assume 25 minutes for installation of reflector.

CONSTRUCTION COST ESTIMATE

Project: Lighting Upgrade
 Location: Pine Bluff Arsenal, AR
 Basis: Pre-Design Study
 Building: 34-140

RS&H No.: 694-1331-001
 Date: 23-Mar-95
 Estimator: W.T.Todd
 Filename: EST-SUMP.WQ1

ITEM DESCRIPTION	QUANTITY		LABOR		MATERIAL		TOTAL COST	SOURCE	
	No.	Unit	\$/Unit	Total	\$/Unit	Total		Labor	Material
Fixture Removal									
2x2 UTF or Inc Surf	0	Ea	10.01	0	0.00	0	0	MEp17	N/A
2x4 FI Troffer	0	Ea	14.66	0	0.00	0	0	MEp17	N/A
4' FI Surf Strip	0	Ea	9.79	0	0.00	0	0	MEp18	N/A
4' FI Surf Wrap	1	Ea	13.34	13	0.00	0	13	MEp17	N/A
4' FI Pend Indust	1	Ea	12.57	13	0.00	0	13	MEp18	N/A
8' FI Pend Indust	0	Ea	16.31	0	0.00	0	0	MEp18	N/A
8' FI Surf Strip	0	Ea	11.00	0	0.00	0	0	MEp18	N/A
Low Bay Fixture	10	Ea	22.00	220	0.00	0	220	MEp18	N/A
High Bay Fixture	0	Ea	29.34	0	0.00	0	0	MEp18	N/A
Repair Plas Ceiling	1	SF	0.63	1	0.37	0	1	MBp229	MBp229
Inst. Ceiling Tile	0	SF	0.36	0	0.72	0	0	MBp237	MBp237
Fixture Installation									
11" Srf, 2-26W CFL	0	Ea	27.50	0	79.95	0	0	MEp209	NLp12
High Bay, 1-100W MH	0	Ea	95.65	0	186.27	0	0	MEp208	GRp923
4', 1 Lamp Indust.	0	Ea	36.99	0	52.34	0	0	MEp208	GRp918
4', 2 Lamp Indust.	2	Ea	38.61	77	53.24	106	183	MEp208	GRp917
4', 2 Lmp Ind w/Refl	0	Ea	38.61	0	58.24	0	0	MEp208	GRp918
4', 1 Lamp Strip	0	Ea	25.88	0	44.18	0	0	MEp208	GRp915
4', 2 Lamp Strip	0	Ea	27.50	0	47.99	0	0	MEp208	NLp15
2x4, 2 Lamp Surf Mt	0	Ea	35.48	0	76.04	0	0	MEp208	MEp208
2x4, 2 Lamp Troffer	0	Ea	41.50	0	58.99	0	0	MEp207	NLp15
4', 2 Lamp WA	0	Ea	31.43	0	56.54	0	0	MEp208	NLp15
4', 2 Lamp WA Wet	0	Ea	68.75	0	84.04	0	0	MEp210	MEp210
4', 2 Lamp WA w/Refl	0	Ea	31.43	0	75.54	0	0	MEp208	NLp15
4', 4 Lamp WA	0	Ea	41.50	0	71.58	0	0	MEp208	NLp15
8', 2 Lamp Indust.	9	Ea	50.00	450	84.44	760	1,210	MEp208	GRp917
Fixture Upgrades									
Remove Incand Lamps	4	Ea	1.38	6	0.00	0	6	MEp215	N/A
Install Integral CF									
15W w/ Elec Bal	0	Ea	1.38	0	19.95	0	0	MEp215	NLp9
20W w/ Elec Bal	0	Ea	1.38	0	19.95	0	0	MEp215	NLp9
23W w/ Elec Bal	0	Ea	1.38	0	19.95	0	0	MEp215	NLp9
28W w/ Mag Bal	4	Ea	1.38	6	29.95	120	126	MEp215	NLp10
Remove Fluor Lamps	20	Ea	1.83	37	0.00	0	37	MEp13	N/A
Remove Ballasts	10	Ea	11.00	110	0.00	0	110	MEp211	N/A
Remove Lampholders	0	Ea	2.29	0	0.00	0	0	(1)	N/A
Install T8 Lamps									
F32T8/TL70/35K	16	Ea	1.83	29	2.02	32	61	MEp13	DGSC
F96T8/TL70/35K	4	Ea	1.83	7	6.40	26	33	MEp13	OS/SYL
FB32T8/TL70/35K	0	Ea	1.83	0	9.34	0	0	MEp13	DGSC
Install T8 Ballasts									
2-F32T8 Lamps	8	Ea	11.00	88	22.50	180	268	MEp211	OS/SYL
3-F32T8 Lamps	0	Ea	11.00	0	23.50	0	0	MEp211	OS/SYL
4-F32T8 Lamps	0	Ea	11.00	0	24.50	0	0	MEp211	OS/SYL
2-F96T8 Lamps	2	Ea	11.00	22	35.00	70	92	MEp211	OS/SYL
Install Reflectors									
4' Strp or Indst	0	Ea	6.88	0	7.95	0	0	(2)	NLp18
4' Wrap or Surf	0	Ea	9.17	0	15.90	0	0	(3)	NLp18
2x4 Troffer	0	Ea	11.46	0	25.35	0	0	(4)	NLp18
Total Bare Costs				1079		1294	\$2,373		

CONSTRUCTION COST ESTIMATE

Project: Lighting Upgrade
Location: Pine Bluff Arsenal, AR
Basis: Pre-Design Study
Building: 34-140

RS&H No.: 694-1331-001
Date: 23-Mar-95
Estimator: W.T.Todd
Filename: EST-SUMP.WQ1

[illegible]

LEGEND & NOTES

Labor costs based on Means manhour estimates and labor rate (\$27.50/hr).

DGSC Defense General Supply Center, February 1994 Catalog.

GRp### Grainger Catalog No. 385, page ###, x 0.80 for contr price.

MBp### Means Building Construction Cost Data, 1994, page ###.

MEp### Means Electrical Cost Data, 1994, page ###.

NLP### National Lighting Maintenance Supply Corp., 1995, page ###.

OS/SYL Telephone quote from Osram/Sylvania representative.

PBA Information provided by Pine Bluff Arsenal staff.

- (1) Assume lampholder removal takes 5 minutes each.
- (2) Assume 15 minutes for installation of reflector.
- (3) Assume 20 minutes for installation of reflector.
- (4) Assume 25 minutes for installation of reflector.

CONSTRUCTION COST ESTIMATE

Project: Lighting Upgrade
 Location: Pine Bluff Arsenal, AR
 Basis: Pre-Design Study
 Building: 34-910

RS&H No.: 694-1331-001
 Date: 23-Mar-95
 Estimator: W.T.Todd
 Filename: EST-SUMP.WQ1

ITEM DESCRIPTION	QUANTITY		LABOR		MATERIAL		TOTAL COST	SOURCE	
	No.	Unit	\$/Unit	Total	\$/Unit	Total		Labor	Material
Fixture Removal									
2x2 UTF or Inc Surf	0	Ea	10.01	0	0.00	0	0	MEp17	N/A
2x4 FI Troffer	6	Ea	14.66	88	0.00	0	88	MEp17	N/A
4' FI Surf Strip	13	Ea	9.79	127	0.00	0	127	MEp18	N/A
4' FI Surf Wrap	36	Ea	13.34	480	0.00	0	480	MEp17	N/A
4' FI Pend Indust	13	Ea	12.57	163	0.00	0	163	MEp18	N/A
8' FI Pend Indust	7	Ea	16.31	114	0.00	0	114	MEp18	N/A
8' FI Surf Strip	3	Ea	11.00	33	0.00	0	33	MEp18	N/A
Low Bay Fixture	2	Ea	22.00	44	0.00	0	44	MEp18	N/A
High Bay Fixture	8	Ea	29.34	235	0.00	0	235	MEp18	N/A
Repair Plas Ceiling	52	SF	0.63	33	0.37	19	52	MBp229	MBp229
Inst. Ceiling Tile	48	SF	0.36	17	0.72	35	52	MBp237	MBp237
Fixture Installation									
11" Srf, 2-26W CFL	0	Ea	27.50	0	79.95	0	0	MEp209	NLp12
High Bay, 1-100W MH	8	Ea	95.65	765	186.27	1490	2,255	MEp208	GRp923
4', 1 Lamp Indust.	2	Ea	36.99	74	52.34	105	179	MEp208	GRp918
4', 2 Lamp Indust.	49	Ea	38.61	1892	53.24	2609	4,501	MEp208	GRp917
4', 2 Lmp Ind w/Refl	1	Ea	38.61	39	58.24	58	97	MEp208	GRp918
4', 1 Lamp Strip	0	Ea	25.88	0	44.18	0	0	MEp208	GRp915
4', 2 Lamp Strip	0	Ea	27.50	0	47.99	0	0	MEp208	NLp15
2x4, 2 Lamp Surf Mt	0	Ea	35.48	0	76.04	0	0	MEp208	MEp208
2x4, 2 Lamp Troffer	0	Ea	41.50	0	58.99	0	0	MEp207	NLp15
4', 2 Lamp WA	6	Ea	31.43	189	56.54	339	528	MEp208	NLp15
4', 2 Lamp WA Wet	0	Ea	68.75	0	84.04	0	0	MEp210	MEp210
4', 2 Lamp WA w/Refl	14	Ea	31.43	440	75.54	1058	1,498	MEp208	NLp15
4', 4 Lamp WA	0	Ea	41.50	0	71.58	0	0	MEp208	NLp15
8', 2 Lamp Indust.	1	Ea	50.00	50	84.44	84	134	MEp208	GRp917
Fixture Upgrades									
Remove Incand Lamps	0	Ea	1.38	0	0.00	0	0	MEp215	N/A
Install Integral CF									
15W w/ Elec Bal	0	Ea	1.38	0	19.95	0	0	MEp215	NLp9
20W w/ Elec Bal	0	Ea	1.38	0	19.95	0	0	MEp215	NLp9
23W w/ Elec Bal	0	Ea	1.38	0	19.95	0	0	MEp215	NLp9
28W w/ Mag Bal	0	Ea	1.38	0	29.95	0	0	MEp215	NLp10
Remove Fluor Lamps	1427	Ea	1.83	2611	0.00	0	2,611	MEp13	N/A
Remove Ballasts	715	Ea	11.00	7865	0.00	0	7,865	MEp211	N/A
Remove Lampholders	1162	Ea	2.29	2661	0.00	0	2,661	(1)	N/A
Install T8 Lamps									
F32T8/TL70/35K	386	Ea	1.83	706	2.02	780	1,486	MEp13	DGSC
F96T8/TL70/35K	460	Ea	1.83	842	6.40	2944	3,786	MEp13	OS/SYL
FB32T8/TL70/35K	0	Ea	1.83	0	9.34	0	0	MEp13	DGSC
Install T8 Ballasts									
2-F32T8 Lamps	170	Ea	11.00	1870	22.50	3825	5,695	MEp211	OS/SYL
3-F32T8 Lamps	0	Ea	11.00	0	23.50	0	0	MEp211	OS/SYL
4-F32T8 Lamps	12	Ea	11.00	132	24.50	294	426	MEp211	OS/SYL
2-F96T8 Lamps	230	Ea	11.00	2530	35.00	8050	10,580	MEp211	OS/SYL
Install Reflectors									
4' Strp or Indst	8	Ea	6.88	55	7.95	64	119	(2)	NLp18
4' Wrap or Surf	0	Ea	9.17	0	15.90	0	0	(3)	NLp18
2x4 Troffer	0	Ea	11.46	0	25.35	0	0	(4)	NLp18
Total Bare Costs				24055		21754	\$45,809		

CONSTRUCTION COST ESTIMATE

Project: Lighting Upgrade
 Location: Pine Bluff Arsenal, AR
 Basis: Pre-Design Study
 Building: 34-910

RS&H No.: 694-1331-001
 Date: 23-Mar-95
 Estimator: W.T.Todd
 Filename: EST-SUMP.WQ1

ITEM DESCRIPTION	QUANTITY		LABOR		MATERIAL		TOTAL COST	SOURCE	
	No.	Unit	\$/Unit	Total	\$/Unit	Total		Labor	Material
Total Bare Costs				24055		21754	\$45,809		
Economy of Scale			-20.0%	-4811		0	(4,811)	MEp360	
Subtotal				19244		21754	40,998		
City Cost Index			-30.1%	-5792	-3.5%	-761	(6,553)	MEp388	MEp388
Subtotal				13452		20993	34,445		
OH & Profit Markups			50.0%	6726	10.0%	2099	8,825	MEpIBC	MEp3
Subtotal				20178		23092	43,270		
Sales Taxes				0	6.5%	1503	1,503		PBA
Subtotal				20178		24595	44,773		
Contingency			10.0%	2018	10.0%	2460	4,478	MEp4	MEp4
Subtotal				22196		27055	49,251		
Design Fee	6.0%			2955		0	2,955	PBA	
SIOH	6.0%			2955		0	2,955	PBA	
Total Const. Cost				28106		27055	\$55,161		

LEGEND & NOTES

Labor costs based on Means manhour estimates and labor rate (\$27.50/hr).

DGSC Defense General Supply Center, February 1994 Catalog.

GRp### Grainger Catalog No. 385, page ###, x 0.80 for contr price.

MBp### Means Building Construction Cost Data, 1994, page ###.

MEp### Means Electrical Cost Data, 1994, page ###.

NLp### National Lighting Maintenance Supply Corp., 1995, page ###.

OS/SYL Telephone quote from Osram/Sylvania representative.

PBA Information provided by Pine Bluff Arsenal staff.

(1) Assume lampholder removal takes 5 minutes each.

(2) Assume 15 minutes for installation of reflector.

(3) Assume 20 minutes for installation of reflector.

(4) Assume 25 minutes for installation of reflector.

CONSTRUCTION COST ESTIMATE

Project: Lighting Upgrade
 Location: Pine Bluff Arsenal, AR
 Basis: Pre-Design Study
 Building: 34-970

RS&H No.: 694-1331-001
 Date: 23-Mar-95
 Estimator: W.T.Todd
 Filename: EST-SUMP.WQ1

ITEM DESCRIPTION	QUANTITY		LABOR		MATERIAL		TOTAL COST	SOURCE	
	No.	Unit	\$/Unit	Total	\$/Unit	Total		Labor	Material
Fixture Removal									
2x2 UTF or Inc Surf	0	Ea	10.01	0	0.00	0	0	MEp17	N/A
2x4 FI Troffer	8	Ea	14.66	117	0.00	0	117	MEp17	N/A
4' FI Surf Strip	2	Ea	9.79	20	0.00	0	20	MEp18	N/A
4' FI Surf Wrap	0	Ea	13.34	0	0.00	0	0	MEp17	N/A
4' FI Pend Indust	0	Ea	12.57	0	0.00	0	0	MEp18	N/A
8' FI Pend Indust	0	Ea	16.31	0	0.00	0	0	MEp18	N/A
8' FI Surf Strip	0	Ea	11.00	0	0.00	0	0	MEp18	N/A
Low Bay Fixture	0	Ea	22.00	0	0.00	0	0	MEp18	N/A
High Bay Fixture	0	Ea	29.34	0	0.00	0	0	MEp18	N/A
Repair Plas Ceiling	2	SF	0.63	1	0.37	1	2	MBp229	MBp229
Inst. Ceiling Tile	64	SF	0.36	23	0.72	46	69	MBp237	MBp237
Fixture Installation									
11" Srf, 2-26W CFL	0	Ea	27.50	0	79.95	0	0	MEp209	NLp12
High Bay, 1-100W MH	0	Ea	95.65	0	186.27	0	0	MEp208	GRp923
4', 1 Lamp Indust.	0	Ea	36.99	0	52.34	0	0	MEp208	GRp918
4', 2 Lamp Indust.	0	Ea	38.61	0	53.24	0	0	MEp208	GRp917
4', 2 Lmp Ind w/Refl	0	Ea	38.61	0	58.24	0	0	MEp208	GRp918
4', 1 Lamp Strip	0	Ea	25.88	0	44.18	0	0	MEp208	GRp915
4', 2 Lamp Strip	0	Ea	27.50	0	47.99	0	0	MEp208	NLp15
2x4, 2 Lamp Surf Mt	0	Ea	35.48	0	76.04	0	0	MEp208	MEp208
2x4, 2 Lamp Troffer	0	Ea	41.50	0	58.99	0	0	MEp207	NLp15
4', 2 Lamp WA	2	Ea	31.43	63	56.54	113	176	MEp208	NLp15
4', 2 Lamp WA Wet	0	Ea	68.75	0	84.04	0	0	MEp210	MEp210
4', 2 Lamp WA w/Refl	0	Ea	31.43	0	75.54	0	0	MEp208	NLp15
4', 4 Lamp WA	0	Ea	41.50	0	71.58	0	0	MEp208	NLp15
8', 2 Lamp Indust.	0	Ea	50.00	0	84.44	0	0	MEp208	GRp917
Fixture Upgrades									
Remove Incand Lamps	2	Ea	1.38	3	0.00	0	3	MEp215	N/A
Install Integral CF									
15W w/ Elec Bal	0	Ea	1.38	0	19.95	0	0	MEp215	NLp9
20W w/ Elec Bal	2	Ea	1.38	3	19.95	40	43	MEp215	NLp9
23W w/ Elec Bal	0	Ea	1.38	0	19.95	0	0	MEp215	NLp9
28W w/ Mag Bal	0	Ea	1.38	0	29.95	0	0	MEp215	NLp10
Remove Fluor Lamps	96	Ea	1.83	176	0.00	0	176	MEp13	N/A
Remove Ballasts	48	Ea	11.00	528	0.00	0	528	MEp211	N/A
Remove Lampholders	40	Ea	2.29	92	0.00	0	92	(1)	N/A
Install T8 Lamps									
F32T8/TL70/35K	56	Ea	1.83	102	2.02	113	215	MEp13	DGSC
F96T8/TL70/35K	0	Ea	1.83	0	6.40	0	0	MEp13	OS/SYL
FB32T8/TL70/35K	0	Ea	1.83	0	9.34	0	0	MEp13	DGSC
Install T8 Ballasts									
2-F32T8 Lamps	28	Ea	11.00	308	22.50	630	938	MEp211	OS/SYL
3-F32T8 Lamps	0	Ea	11.00	0	23.50	0	0	MEp211	OS/SYL
4-F32T8 Lamps	0	Ea	11.00	0	24.50	0	0	MEp211	OS/SYL
2-F96T8 Lamps	0	Ea	11.00	0	35.00	0	0	MEp211	OS/SYL
Install Reflectors									
4' Strp or Indst	0	Ea	6.88	0	7.95	0	0	(2)	NLp18
4' Wrap or Surf	0	Ea	9.17	0	15.90	0	0	(3)	NLp18
2x4 Troffer	0	Ea	11.46	0	25.35	0	0	(4)	NLp18
Total Bare Costs				1436		943	\$2,379		

CONSTRUCTION COST ESTIMATE

Project: Lighting Upgrade
Location: Pine Bluff Arsenal, AR
Basis: Pre-Design Study
Building: 34-970

RS&H No.: 694-1331-001
Date: 23-Mar-95
Estimator: W.T.Todd
Filename: EST-SUMP.WQ1

[illegible]

LEGEND & NOTES

Labor costs based on Means manhour estimates and labor rate (\$27.50/hr).

DGSC Defense General Supply Center, February 1994 Catalog.

GRp### Grainger Catalog No. 385, page ###, x 0.80 for contr price.

MBp### Means Building Construction Cost Data, 1994, page ###.

MEp### Means Electrical Cost Data, 1994, page ###.

NLP### National Lighting Maintenance Supply Corp., 1995, page ###.

OS/SYL Telephone quote from Osram/Sylvania representative.

PBA Information provided by Pine Bluff Arsenal staff.

- (1) Assume lampholder removal takes 5 minutes each.
- (2) Assume 15 minutes for installation of reflector.
- (3) Assume 20 minutes for installation of reflector.
- (4) Assume 25 minutes for installation of reflector.

CONSTRUCTION COST ESTIMATE

Project: Lighting Upgrade
 Location: Pine Bluff Arsenal, AR
 Basis: Pre-Design Study
 Building: 44-100

RS&H No.: 694-1331-001
 Date: 23-Mar-95
 Estimator: W.T.Todd
 Filename: EST-SUMP.WQ1

ITEM DESCRIPTION	QUANTITY		LABOR		MATERIAL		TOTAL COST	SOURCE	
	No.	Unit	\$/Unit	Total	\$/Unit	Total		Labor	Material
Fixture Removal									
2x2 UTF or Inc Surf	25	Ea	10.01	250	0.00	0	250	MEp17	N/A
2x4 FI Troffer	16	Ea	14.66	235	0.00	0	235	MEp17	N/A
4' FI Surf Strip	19	Ea	9.79	186	0.00	0	186	MEp18	N/A
4' FI Surf Wrap	2	Ea	13.34	27	0.00	0	27	MEp17	N/A
4' FI Pend Indust	0	Ea	12.57	0	0.00	0	0	MEp18	N/A
8' FI Pend Indust	0	Ea	16.31	0	0.00	0	0	MEp18	N/A
8' FI Surf Strip	0	Ea	11.00	0	0.00	0	0	MEp18	N/A
Low Bay Fixture	0	Ea	22.00	0	0.00	0	0	MEp18	N/A
High Bay Fixture	0	Ea	29.34	0	0.00	0	0	MEp18	N/A
Repair Plas Ceiling	46	SF	0.63	29	0.37	17	46	MBp229	MBp229
Inst. Ceiling Tile	128	SF	0.36	46	0.72	92	138	MBp237	MBp237
Fixture Installation									
11" Srf, 2-26W CFL	2	Ea	27.50	55	79.95	160	215	MEp209	NLp12
High Bay, 1-100W MH	0	Ea	95.65	0	186.27	0	0	MEp208	GRp923
4', 1 Lamp Indust.	0	Ea	36.99	0	52.34	0	0	MEp208	GRp918
4', 2 Lamp Indust.	0	Ea	38.61	0	53.24	0	0	MEp208	GRp917
4', 2 Lmp Ind w/Refl	0	Ea	38.61	0	58.24	0	0	MEp208	GRp918
4', 1 Lamp Strip	0	Ea	25.88	0	44.18	0	0	MEp208	GRp915
4', 2 Lamp Strip	0	Ea	27.50	0	47.99	0	0	MEp208	NLp15
2x4, 2 Lamp Surf Mt	0	Ea	35.48	0	76.04	0	0	MEp208	MEp208
2x4, 2 Lamp Troffer	0	Ea	41.50	0	58.99	0	0	MEp207	NLp15
4', 2 Lamp WA	11	Ea	31.43	346	56.54	622	968	MEp208	NLp15
4', 2 Lamp WA Wet	8	Ea	68.75	550	84.04	672	1,222	MEp210	MEp210
4', 2 Lamp WA w/Refl	0	Ea	31.43	0	75.54	0	0	MEp208	NLp15
4', 4 Lamp WA	0	Ea	41.50	0	71.58	0	0	MEp208	NLp15
8', 2 Lamp Indust.	0	Ea	50.00	0	84.44	0	0	MEp208	GRp917
Fixture Upgrades									
Remove Incand Lamps	8	Ea	1.38	11	0.00	0	11	MEp215	N/A
Install Integral CF									
15W w/ Elec Bal	0	Ea	1.38	0	19.95	0	0	MEp215	NLp9
20W w/ Elec Bal	8	Ea	1.38	11	19.95	160	171	MEp215	NLp9
23W w/ Elec Bal	0	Ea	1.38	0	19.95	0	0	MEp215	NLp9
28W w/ Mag Bal	0	Ea	1.38	0	29.95	0	0	MEp215	NLp10
Remove Fluor Lamps	631	Ea	1.83	1155	0.00	0	1,155	MEp13	N/A
Remove Ballasts	344	Ea	11.00	3784	0.00	0	3,784	MEp211	N/A
Remove Lampholders	390	Ea	2.29	893	0.00	0	893	(1)	N/A
Install T8 Lamps									
F32T8/TL70/35K	430	Ea	1.83	787	2.02	869	1,656	MEp13	DGSC
F96T8/TL70/35K	0	Ea	1.83	0	6.40	0	0	MEp13	OS/SYL
FB32T8/TL70/35K	6	Ea	1.83	11	9.34	56	67	MEp13	DGSC
Install T8 Ballasts									
2-F32T8 Lamps	218	Ea	11.00	2398	22.50	4905	7,303	MEp211	OS/SYL
3-F32T8 Lamps	0	Ea	11.00	0	23.50	0	0	MEp211	OS/SYL
4-F32T8 Lamps	0	Ea	11.00	0	24.50	0	0	MEp211	OS/SYL
2-F96T8 Lamps	0	Ea	11.00	0	35.00	0	0	MEp211	OS/SYL
Install Reflectors									
4' Strp or Indst	0	Ea	6.88	0	7.95	0	0	(2)	NLp18
4' Wrap or Surf	0	Ea	9.17	0	15.90	0	0	(3)	NLp18
2x4 Troffer	5	Ea	11.46	57	25.35	127	184	(4)	NLp18
Total Bare Costs				10831		7680	\$18,511		

CONSTRUCTION COST ESTIMATE

Project: Lighting Upgrade
Location: Pine Bluff Arsenal, AR
Basis: Pre-Design Study
Building: 44-100

RS&H No.: 694-1331-001
Date: 23-Mar-95
Estimator: W.T.Todd
Filename: EST-SUMP.WQ1

[illegible]

LEGEND & NOTES

Labor costs based on Means manhour estimates and labor rate (\$27.50/hr).

DGSC Defense General Supply Center, February 1994 Catalog.

GRp### Grainger Catalog No. 385, page ###, x 0.80 for contr price.

MBP### Means Building Construction Cost Data, 1994, page ###.

MEp### Means Electrical Cost Data, 1994, page ###.

NLP### National Lighting Maintenance Supply Corp., 1995, page ###.

OS/SYL Telephone quote from Osram/Sylvania representative.

PBA Information provided by Pine Bluff Arsenal staff.

- (1) Assume lampholder removal takes 5 minutes each.
- (2) Assume 15 minutes for installation of reflector.
- (3) Assume 20 minutes for installation of reflector.
- (4) Assume 25 minutes for installation of reflector.

CONSTRUCTION COST ESTIMATE

Project: Lighting Upgrade
 Location: Pine Bluff Arsenal, AR
 Basis: Pre-Design Study
 Building: 51-420

RS&H No.: 694-1331-001
 Date: 23-Mar-95
 Estimator: W.T.Todd
 Filename: EST-SUMP.WQ1

ITEM DESCRIPTION	QUANTITY		LABOR		MATERIAL		TOTAL COST	SOURCE	
	No.	Unit	\$/Unit	Total	\$/Unit	Total		Labor	Material
Fixture Removal									
2x2 UTF or Inc Surf	0	Ea	10.01	0	0.00	0	0	MEp17	N/A
2x4 FI Troffer	13	Ea	14.66	191	0.00	0	191	MEp17	N/A
4' FI Surf Strip	0	Ea	9.79	0	0.00	0	0	MEp18	N/A
4' FI Surf Wrap	3	Ea	13.34	40	0.00	0	40	MEp17	N/A
4' FI Pend Indust	0	Ea	12.57	0	0.00	0	0	MEp18	N/A
8' FI Pend Indust	0	Ea	16.31	0	0.00	0	0	MEp18	N/A
8' FI Surf Strip	0	Ea	11.00	0	0.00	0	0	MEp18	N/A
Low Bay Fixture	0	Ea	22.00	0	0.00	0	0	MEp18	N/A
High Bay Fixture	0	Ea	29.34	0	0.00	0	0	MEp18	N/A
Repair Plas Ceiling	3	SF	0.63	2	0.37	1	3	MBp229	MBp229
Inst. Ceiling Tile	104	SF	0.36	37	0.72	75	112	MBp237	MBp237
Fixture Installation									
11" Srf, 2-26W CFL	0	Ea	27.50	0	79.95	0	0	MEp209	NLp12
High Bay, 1-100W MH	0	Ea	95.65	0	186.27	0	0	MEp208	GRp923
4', 1 Lamp Indust.	0	Ea	36.99	0	52.34	0	0	MEp208	GRp918
4', 2 Lamp Indust.	0	Ea	38.61	0	53.24	0	0	MEp208	GRp917
4', 2 Lmp Ind w/Refl	0	Ea	38.61	0	58.24	0	0	MEp208	GRp918
4', 1 Lamp Strip	0	Ea	25.88	0	44.18	0	0	MEp208	GRp915
4', 2 Lamp Strip	0	Ea	27.50	0	47.99	0	0	MEp208	NLp15
2x4, 2 Lamp Surf Mt	0	Ea	35.48	0	76.04	0	0	MEp208	MEp208
2x4, 2 Lamp Troffer	0	Ea	41.50	0	58.99	0	0	MEp207	NLp15
4', 2 Lamp WA	0	Ea	31.43	0	56.54	0	0	MEp208	NLp15
4', 2 Lamp WA Wet	0	Ea	68.75	0	84.04	0	0	MEp210	MEp210
4', 2 Lamp WA w/Refl	0	Ea	31.43	0	75.54	0	0	MEp208	NLp15
4', 4 Lamp WA	0	Ea	41.50	0	71.58	0	0	MEp208	NLp15
8', 2 Lamp Indust.	0	Ea	50.00	0	84.44	0	0	MEp208	GRp917
Fixture Upgrades									
Remove Incand Lamps	0	Ea	1.38	0	0.00	0	0	MEp215	N/A
Install Integral CF									
15W w/ Elec Bal	0	Ea	1.38	0	19.95	0	0	MEp215	NLp9
20W w/ Elec Bal	0	Ea	1.38	0	19.95	0	0	MEp215	NLp9
23W w/ Elec Bal	0	Ea	1.38	0	19.95	0	0	MEp215	NLp9
28W w/ Mag Bal	0	Ea	1.38	0	29.95	0	0	MEp215	NLp10
Remove Fluor Lamps	452	Ea	1.83	827	0.00	0	827	MEp13	N/A
Remove Ballasts	227	Ea	11.00	2497	0.00	0	2,497	MEp211	N/A
Remove Lampholders	432	Ea	2.29	989	0.00	0	989	(1)	N/A
Install T8 Lamps									
F32T8/TL70/35K	236	Ea	1.83	432	2.02	477	909	MEp13	DGSC
F96T8/TL70/35K	0	Ea	1.83	0	6.40	0	0	MEp13	OS/SYL
FB32T8/TL70/35K	0	Ea	1.83	0	9.34	0	0	MEp13	DGSC
Install T8 Ballasts									
2-F32T8 Lamps	118	Ea	11.00	1298	22.50	2655	3,953	MEp211	OS/SYL
3-F32T8 Lamps	0	Ea	11.00	0	23.50	0	0	MEp211	OS/SYL
4-F32T8 Lamps	0	Ea	11.00	0	24.50	0	0	MEp211	OS/SYL
2-F96T8 Lamps	0	Ea	11.00	0	35.00	0	0	MEp211	OS/SYL
Install Reflectors									
4' Strp or Indst	0	Ea	6.88	0	7.95	0	0	(2)	NLp18
4' Wrap or Surf	0	Ea	9.17	0	15.90	0	0	(3)	NLp18
2x4 Troffer	0	Ea	11.46	0	25.35	0	0	(4)	NLp18
Total Bare Costs				6313		3208	\$9,521		

CONSTRUCTION COST ESTIMATE

Project: Lighting Upgrade
Location: Pine Bluff Arsenal, AR
Basis: Pre-Design Study
Building: 51-420

RS&H No.: 694-1331-001
Date: 23-Mar-95
Estimator: W.T.Todd
Filename: EST-SUMP.WQ1

[illegible]

LEGEND & NOTES

Labor costs based on Means manhour estimates and labor rate (\$27.50/hr).

DGSC Defense General Supply Center, February 1994 Catalog.

GRp### Grainger Catalog No. 385, page ###, x 0.80 for contr price.

MBp### Means Building Construction Cost Data, 1994, page ###.

MEp### Means Electrical Cost Data, 1994, page ###.

NLP### National Lighting Maintenance Supply Corp., 1995, page ###.

OS/SYL Telephone quote from Osram/Sylvania representative.

PBA Information provided by Pine Bluff Arsenal staff.

- (1) Assume lampholder removal takes 5 minutes each.
- (2) Assume 15 minutes for installation of reflector.
- (3) Assume 20 minutes for installation of reflector.
- (4) Assume 25 minutes for installation of reflector.

CONSTRUCTION COST ESTIMATE

Project: Lighting Upgrade
 Location: Pine Bluff Arsenal, AR
 Basis: Pre-Design Study
 Building: 51-430

RS&H No.: 694-1331-001
 Date: 23-Mar-95
 Estimator: W.T.Todd
 Filename: EST-SUMP.WQ1

ITEM DESCRIPTION	QUANTITY		LABOR		MATERIAL		TOTAL COST	SOURCE	
	No.	Unit	\$/Unit	Total	\$/Unit	Total		Labor	Material
Fixture Removal									
2x2 UTF or Inc Surf	0	Ea	10.01	0	0.00	0	0	MEp17	N/A
2x4 FI Troffer	4	Ea	14.66	59	0.00	0	59	MEp17	N/A
4' FI Surf Strip	0	Ea	9.79	0	0.00	0	0	MEp18	N/A
4' FI Surf Wrap	0	Ea	13.34	0	0.00	0	0	MEp17	N/A
4' FI Pend Indust	0	Ea	12.57	0	0.00	0	0	MEp18	N/A
8' FI Pend Indust	0	Ea	16.31	0	0.00	0	0	MEp18	N/A
8' FI Surf Strip	0	Ea	11.00	0	0.00	0	0	MEp18	N/A
Low Bay Fixture	0	Ea	22.00	0	0.00	0	0	MEp18	N/A
High Bay Fixture	0	Ea	29.34	0	0.00	0	0	MEp18	N/A
Repair Plac Ceiling	0	SF	0.63	0	0.37	0	0	MBp229	MBp229
Inst. Ceiling Tile	32	SF	0.36	12	0.72	23	35	MBp237	MBp237
Fixture Installation									
11" Srf, 2-26W CFL	0	Ea	27.50	0	79.95	0	0	MEp209	NLp12
High Bay, 1-100W MH	0	Ea	95.65	0	186.27	0	0	MEp208	GRp923
4', 1 Lamp Indust.	0	Ea	36.99	0	52.34	0	0	MEp208	GRp918
4', 2 Lamp Indust.	0	Ea	38.61	0	53.24	0	0	MEp208	GRp917
4', 2 Lmp Ind w/Refl	0	Ea	38.61	0	58.24	0	0	MEp208	GRp918
4', 1 Lamp Strip	0	Ea	25.88	0	44.18	0	0	MEp208	GRp915
4', 2 Lamp Strip	0	Ea	27.50	0	47.99	0	0	MEp208	NLp15
2x4, 2 Lamp Surf Mt	0	Ea	35.48	0	76.04	0	0	MEp208	MEp208
2x4, 2 Lamp Troffer	0	Ea	41.50	0	58.99	0	0	MEp207	NLp15
4', 2 Lamp WA	0	Ea	31.43	0	56.54	0	0	MEp208	NLp15
4', 2 Lamp WA Wet	0	Ea	68.75	0	84.04	0	0	MEp210	MEp210
4', 2 Lamp WA w/Refl	0	Ea	31.43	0	75.54	0	0	MEp208	NLp15
4', 4 Lamp WA	0	Ea	41.50	0	71.58	0	0	MEp208	NLp15
8', 2 Lamp Indust.	0	Ea	50.00	0	84.44	0	0	MEp208	GRp917
Fixture Upgrades									
Remove Incand Lamps	4	Ea	1.38	6	0.00	0	6	MEp215	N/A
Install Integral CF									
15W w/ Elec Bal	0	Ea	1.38	0	19.95	0	0	MEp215	NLp9
20W w/ Elec Bal	4	Ea	1.38	6	19.95	80	86	MEp215	NLp9
23W w/ Elec Bal	0	Ea	1.38	0	19.95	0	0	MEp215	NLp9
28W w/ Mag Bal	0	Ea	1.38	0	29.95	0	0	MEp215	NLp10
Remove Fluor Lamps	82	Ea	1.83	150	0.00	0	150	MEp13	N/A
Remove Ballasts	41	Ea	11.00	451	0.00	0	451	MEp211	N/A
Remove Lampholders	32	Ea	2.29	73	0.00	0	73	(1)	N/A
Install T8 Lamps									
F32T8/TL70/35K	34	Ea	1.83	62	2.02	69	131	MEp13	DGSC
F96T8/TL70/35K	16	Ea	1.83	29	6.40	102	131	MEp13	OS/SYL
FB32T8/TL70/35K	0	Ea	1.83	0	9.34	0	0	MEp13	DGSC
Install T8 Ballasts									
2-F32T8 Lamps	17	Ea	11.00	187	22.50	383	570	MEp211	OS/SYL
3-F32T8 Lamps	0	Ea	11.00	0	23.50	0	0	MEp211	OS/SYL
4-F32T8 Lamps	0	Ea	11.00	0	24.50	0	0	MEp211	OS/SYL
2-F96T8 Lamps	8	Ea	11.00	88	35.00	280	368	MEp211	OS/SYL
Install Reflectors									
4' Strp or Indst	0	Ea	6.88	0	7.95	0	0	(2)	NLp18
4' Wrap or Surf	0	Ea	9.17	0	15.90	0	0	(3)	NLp18
2x4 Troffer	0	Ea	11.46	0	25.35	0	0	(4)	NLp18
Total Bare Costs				1123		937	\$2,060		

CONSTRUCTION COST ESTIMATE

Project: Lighting Upgrade
Location: Pine Bluff Arsenal, AR
Basis: Pre-Design Study
Building: 51-430

RS&H No.: 694-1331-001
Date: 23-Mar-95
Estimator: W.T.Todd
Filename: EST-SUMP.WQ1

[illegible]

LEGEND & NOTES

Labor costs based on Means manhour estimates and labor rate (\$27.50/hr).

DGSC Defense General Supply Center, February 1994 Catalog.

GRp### Grainger Catalog No. 385, page ###, x 0.80 for contr price.

MBp### Means Building Construction Cost Data, 1994, page ###.

MEp### Means Electrical Cost Data, 1994, page ###.

NLP### National Lighting Maintenance Supply Corp., 1995, page ###.

OS/SYL Telephone quote from Osram/Sylvania representative.

PBA Information provided by Pine Bluff Arsenal staff.

- (1) Assume lampholder removal takes 5 minutes each.
- (2) Assume 15 minutes for installation of reflector.
- (3) Assume 20 minutes for installation of reflector.
- (4) Assume 25 minutes for installation of reflector.

CONSTRUCTION COST ESTIMATE

Project: Lighting Upgrade
 Location: Pine Bluff Arsenal, AR
 Basis: Pre-Design Study
 Building: 53-160

RS&H No.: 694-1331-001
 Date: 23-Mar-95
 Estimator: W.T.Todd
 Filename: EST-SUMP.WQ1

ITEM DESCRIPTION	QUANTITY		LABOR		MATERIAL		TOTAL COST	SOURCE	
	No.	Unit	\$/Unit	Total	\$/Unit	Total		Labor	Material
Fixture Removal									
2x2 UTF or Inc Surf	0	Ea	10.01	0	0.00	0	0	MEp17	N/A
2x4 FI Troffer	0	Ea	14.66	0	0.00	0	0	MEp17	N/A
4' FI Surf Strip	0	Ea	9.79	0	0.00	0	0	MEp18	N/A
4' FI Surf Wrap	0	Ea	13.34	0	0.00	0	0	MEp17	N/A
4' FI Pend Indust	0	Ea	12.57	0	0.00	0	0	MEp18	N/A
8' FI Pend Indust	0	Ea	16.31	0	0.00	0	0	MEp18	N/A
8' FI Surf Strip	0	Ea	11.00	0	0.00	0	0	MEp18	N/A
Low Bay Fixture	0	Ea	22.00	0	0.00	0	0	MEp18	N/A
High Bay Fixture	0	Ea	29.34	0	0.00	0	0	MEp18	N/A
Repair Plas Ceiling	0	SF	0.63	0	0.37	0	0	MBp229	MBp229
Inst. Ceiling Tile	0	SF	0.36	0	0.72	0	0	MBp237	MBp237
Fixture Installation									
11" Srf, 2-26W CFL	0	Ea	27.50	0	79.95	0	0	MEp209	NLp12
High Bay, 1-100W MH	0	Ea	95.65	0	186.27	0	0	MEp208	GRp923
4', 1 Lamp Indust.	0	Ea	36.99	0	52.34	0	0	MEp208	GRp918
4', 2 Lamp Indust.	0	Ea	38.61	0	53.24	0	0	MEp208	GRp917
4', 2 Lmp Ind w/Refl	0	Ea	38.61	0	58.24	0	0	MEp208	GRp918
4', 1 Lamp Strip	0	Ea	25.88	0	44.18	0	0	MEp208	GRp915
4', 2 Lamp Strip	0	Ea	27.50	0	47.99	0	0	MEp208	NLp15
2x4, 2 Lamp Surf Mt	0	Ea	35.48	0	76.04	0	0	MEp208	MEp208
2x4, 2 Lamp Troffer	0	Ea	41.50	0	58.99	0	0	MEp207	NLp15
4', 2 Lamp WA	0	Ea	31.43	0	56.54	0	0	MEp208	NLp15
4', 2 Lamp WA Wet	0	Ea	68.75	0	84.04	0	0	MEp210	MEp210
4', 2 Lamp WA w/Refl	0	Ea	31.43	0	75.54	0	0	MEp208	NLp15
4', 4 Lamp WA	0	Ea	41.50	0	71.58	0	0	MEp208	NLp15
8', 2 Lamp Indust.	0	Ea	50.00	0	84.44	0	0	MEp208	GRp917
Fixture Upgrades									
Remove Incand Lamps	5	Ea	1.38	7	0.00	0	7	MEp215	N/A
Install Integral CF									
15W w/ Elec Bal	0	Ea	1.38	0	19.95	0	0	MEp215	NLp9
20W w/ Elec Bal	0	Ea	1.38	0	19.95	0	0	MEp215	NLp9
23W w/ Elec Bal	5	Ea	1.38	7	19.95	100	107	MEp215	NLp9
28W w/ Mag Bal	0	Ea	1.38	0	29.95	0	0	MEp215	NLp10
Remove Fluor Lamps	178	Ea	1.83	326	0.00	0	326	MEp13	N/A
Remove Ballasts	89	Ea	11.00	979	0.00	0	979	MEp211	N/A
Remove Lampholders	68	Ea	2.29	156	0.00	0	156	(1)	N/A
Install T8 Lamps									
F32T8/TL70/35K	110	Ea	1.83	201	2.02	222	423	MEp13	DGSC
F96T8/TL70/35K	0	Ea	1.83	0	6.40	0	0	MEp13	OS/SYL
FB32T8/TL70/35K	0	Ea	1.83	0	9.34	0	0	MEp13	DGSC
Install T8 Ballasts									
2-F32T8 Lamps	55	Ea	11.00	605	22.50	1238	1,843	MEp211	OS/SYL
3-F32T8 Lamps	0	Ea	11.00	0	23.50	0	0	MEp211	OS/SYL
4-F32T8 Lamps	0	Ea	11.00	0	24.50	0	0	MEp211	OS/SYL
2-F96T8 Lamps	0	Ea	11.00	0	35.00	0	0	MEp211	OS/SYL
Install Reflectors									
4' Strp or Indst	0	Ea	6.88	0	7.95	0	0	(2)	NLp18
4' Wrap or Surf	0	Ea	9.17	0	15.90	0	0	(3)	NLp18
2x4 Troffer	4	Ea	11.46	46	25.35	101	147	(4)	NLp18
Total Bare Costs				2327		1661	\$3,988		

CONSTRUCTION COST ESTIMATE

Project: Lighting Upgrade
Location: Pine Bluff Arsenal, AR
Basis: Pre-Design Study
Building: 53-160

RS&H No.: 694-1331-001
Date: 23-Mar-95
Estimator: W.T.Todd
Filename: EST-SUMP.WQ1

[illegible]

LEGEND & NOTES

Labor costs based on Means manhour estimates and labor rate (\$27.50/hr).

DGSC Defense General Supply Center, February 1994 Catalog.

GRp### Grainger Catalog No. 385, page ###, x 0.80 for contr price.

MBP### Means Building Construction Cost Data, 1994, page ###.

MEp### Means Electrical Cost Data, 1994, page ###.

NLP### National Lighting Maintenance Supply Corp., 1995, page ###.

OS/SYL Telephone quote from Osram/Sylvania representative.

PBA Information provided by Pine Bluff Arsenal staff.

- (1) Assume lampholder removal takes 5 minutes each.
- (2) Assume 15 minutes for installation of reflector.
- (3) Assume 20 minutes for installation of reflector.
- (4) Assume 25 minutes for installation of reflector.

CONSTRUCTION COST ESTIMATE

Project: Lighting Upgrade
 Location: Pine Bluff Arsenal, AR
 Basis: Pre-Design Study
 Building: 60-020

RS&H No.: 694-1331-001
 Date: 23-Mar-95
 Estimator: W.T.Todd
 Filename: EST-SUMP.WQ1

ITEM DESCRIPTION	QUANTITY		LABOR		MATERIAL		TOTAL COST	SOURCE	
	No.	Unit	\$/Unit	Total	\$/Unit	Total		Labor	Material
Fixture Removal									
2x2 UTF or Inc Surf	0	Ea	10.01	0	0.00	0	0	MEp17	N/A
2x4 FI Troffer	0	Ea	14.66	0	0.00	0	0	MEp17	N/A
4' FI Surf Strip	25	Ea	9.79	245	0.00	0	245	MEp18	N/A
4' FI Surf Wrap	1	Ea	13.34	13	0.00	0	13	MEp17	N/A
4' FI Pend Indust	0	Ea	12.57	0	0.00	0	0	MEp18	N/A
8' FI Pend Indust	0	Ea	16.31	0	0.00	0	0	MEp18	N/A
8' FI Surf Strip	0	Ea	11.00	0	0.00	0	0	MEp18	N/A
Low Bay Fixture	0	Ea	22.00	0	0.00	0	0	MEp18	N/A
High Bay Fixture	0	Ea	29.34	0	0.00	0	0	MEp18	N/A
Repair Plas Ceiling	26	SF	0.63	16	0.37	10	26	MBp229	MBp229
Inst. Ceiling Tile	0	SF	0.36	0	0.72	0	0	MBp237	MBp237
Fixture Installation									
11" Srf, 2-26W CFL	0	Ea	27.50	0	79.95	0	0	MEp209	NLp12
High Bay, 1-100W MH	0	Ea	95.65	0	186.27	0	0	MEp208	GRp923
4', 1 Lamp Indust.	0	Ea	36.99	0	52.34	0	0	MEp208	GRp918
4', 2 Lamp Indust.	0	Ea	38.61	0	53.24	0	0	MEp208	GRp917
4', 2 Lmp Ind w/Refl	0	Ea	38.61	0	58.24	0	0	MEp208	GRp918
4', 1 Lamp Strip	0	Ea	25.88	0	44.18	0	0	MEp208	GRp915
4', 2 Lamp Strip	0	Ea	27.50	0	47.99	0	0	MEp208	NLp15
2x4, 2 Lamp Surf Mt	0	Ea	35.48	0	76.04	0	0	MEp208	MEp208
2x4, 2 Lamp Troffer	0	Ea	41.50	0	58.99	0	0	MEp207	NLp15
4', 2 Lamp WA	11	Ea	31.43	346	56.54	622	968	MEp208	NLp15
4', 2 Lamp WA Wet	0	Ea	68.75	0	84.04	0	0	MEp210	MEp210
4', 2 Lamp WA w/Refl	11	Ea	31.43	346	75.54	831	1,177	MEp208	NLp15
4', 4 Lamp WA	2	Ea	41.50	83	71.58	143	226	MEp208	NLp15
8', 2 Lamp Indust.	0	Ea	50.00	0	84.44	0	0	MEp208	GRp917
Fixture Upgrades									
Remove Incand Lamps	0	Ea	1.38	0	0.00	0	0	MEp215	N/A
Install Integral CF									
15W w/ Elec Bal	0	Ea	1.38	0	19.95	0	0	MEp215	NLp9
20W w/ Elec Bal	0	Ea	1.38	0	19.95	0	0	MEp215	NLp9
23W w/ Elec Bal	0	Ea	1.38	0	19.95	0	0	MEp215	NLp9
28W w/ Mag Bal	0	Ea	1.38	0	29.95	0	0	MEp215	NLp10
Remove Fluor Lamps	106	Ea	1.83	194	0.00	0	194	MEp13	N/A
Remove Ballasts	53	Ea	11.00	583	0.00	0	583	MEp211	N/A
Remove Lampholders	42	Ea	2.29	96	0.00	0	96	(1)	N/A
Install T8 Lamps									
F32T8/TL70/35K	66	Ea	1.83	121	2.02	133	254	MEp13	DGSC
F96T8/TL70/35K	0	Ea	1.83	0	6.40	0	0	MEp13	OS/SYL
FB32T8/TL70/35K	0	Ea	1.83	0	9.34	0	0	MEp13	DGSC
Install T8 Ballasts									
2-F32T8 Lamps	30	Ea	11.00	330	22.50	675	1,005	MEp211	OS/SYL
3-F32T8 Lamps	2	Ea	11.00	22	23.50	47	69	MEp211	OS/SYL
4-F32T8 Lamps	0	Ea	11.00	0	24.50	0	0	MEp211	OS/SYL
2-F96T8 Lamps	0	Ea	11.00	0	35.00	0	0	MEp211	OS/SYL
Install Reflectors									
4' Strp or Indst	0	Ea	6.88	0	7.95	0	0	(2)	NLp18
4' Wrap or Surf	4	Ea	9.17	37	15.90	64	101	(3)	NLp18
2x4 Troffer	0	Ea	11.46	0	25.35	0	0	(4)	NLp18
Total Bare Costs				2432		2525	\$4,957		

CONSTRUCTION COST ESTIMATE

Project: Lighting Upgrade
 Location: Pine Bluff Arsenal, AR
 Basis: Pre-Design Study
 Building: 60-020

RS&H No.: 694-1331-001
 Date: 23-Mar-95
 Estimator: W.T.Todd
 Filename: EST-SUMP.WQ1

ITEM DESCRIPTION	QUANTITY		LABOR		MATERIAL		TOTAL COST	SOURCE	
	No.	Unit	\$/Unit	Total	\$/Unit	Total		Labor	Material
Total Bare Costs				2432		2525	\$4,957		
Economy of Scale			-20.0%	-486		0	(486)	MEp360	
Subtotal				1946		2525	4,471		
City Cost Index			-30.1%	-586	-3.5%	-88	(674)	MEp388	MEp388
Subtotal				1360		2437	3,797		
OH & Profit Markups			50.0%	680	10.0%	244	924	MEpIBC	MEp3
Subtotal				2040		2681	4,721		
Sales Taxes				0	6.5%	175	175		PBA
Subtotal				2040		2856	4,896		
Contingency			10.0%	204	10.0%	286	490	MEp4	MEp4
Subtotal				2244		3142	5,386		
Design Fee	6.0%			323		0	323	PBA	
SIOH	6.0%			323		0	323	PBA	
Total Const. Cost				2890		3142	\$6,032		

LEGEND & NOTES

Labor costs based on Means manhour estimates and labor rate (\$27.50/hr).

.DGSC Defense General Supply Center, February 1994 Catalog.

GRp### Grainger Catalog No. 385, page ###, x 0.80 for contr price.

MBp### Means Building Construction Cost Data, 1994, page ###.

MEp### Means Electrical Cost Data, 1994, page ###.

NLp### National Lighting Maintenance Supply Corp., 1995, page ###.

OS/SYL Telephone quote from Osram/Sylvania representative.

PBA Information provided by Pine Bluff Arsenal staff.

(1) Assume lampholder removal takes 5 minutes each.

(2) Assume 15 minutes for installation of reflector.

(3) Assume 20 minutes for installation of reflector.

(4) Assume 25 minutes for installation of reflector.

CONSTRUCTION COST ESTIMATE

Project: Lighting Upgrade
 Location: Pine Bluff Arsenal, AR
 Basis: Pre-Design Study
 Building: 60-060

RS&H No.: 694-1331-001
 Date: 23-Mar-95
 Estimator: W.T.Todd
 Filename: EST-SUMP.WQ1

ITEM DESCRIPTION	QUANTITY		LABOR		MATERIAL		TOTAL COST	SOURCE	
	No.	Unit	\$/Unit	Total	\$/Unit	Total		Labor	Material
Fixture Removal									
2x2 UTF or Inc Surf	0	Ea	10.01	0	0.00	0	0	MEp17	N/A
2x4 FI Troffer	0	Ea	14.66	0	0.00	0	0	MEp17	N/A
4' FI Surf Strip	0	Ea	9.79	0	0.00	0	0	MEp18	N/A
4' FI Surf Wrap	0	Ea	13.34	0	0.00	0	0	MEp17	N/A
4' FI Pend Indust	0	Ea	12.57	0	0.00	0	0	MEp18	N/A
8' FI Pend Indust	0	Ea	16.31	0	0.00	0	0	MEp18	N/A
8' FI Surf Strip	0	Ea	11.00	0	0.00	0	0	MEp18	N/A
Low Bay Fixture	0	Ea	22.00	0	0.00	0	0	MEp18	N/A
High Bay Fixture	0	Ea	29.34	0	0.00	0	0	MEp18	N/A
Repair Plas Ceiling	0	SF	0.63	0	0.37	0	0	MBp229	MBp229
Inst. Ceiling Tile	0	SF	0.36	0	0.72	0	0	MBp237	MBp237
Fixture Installation									
11" Srf, 2-26W CFL	0	Ea	27.50	0	79.95	0	0	MEp209	NLp12
High Bay, 1-100W MH	0	Ea	95.65	0	186.27	0	0	MEp208	GRp923
4', 1 Lamp Indust.	0	Ea	36.99	0	52.34	0	0	MEp208	GRp918
4', 2 Lamp Indust.	0	Ea	38.61	0	53.24	0	0	MEp208	GRp917
4', 2 Lmp Ind w/Refl	0	Ea	38.61	0	58.24	0	0	MEp208	GRp918
4', 1 Lamp Strip	0	Ea	25.88	0	44.18	0	0	MEp208	GRp915
4', 2 Lamp Strip	0	Ea	27.50	0	47.99	0	0	MEp208	NLp15
2x4, 2 Lamp Surf Mt	0	Ea	35.48	0	76.04	0	0	MEp208	MEp208
2x4, 2 Lamp Troffer	0	Ea	41.50	0	58.99	0	0	MEp207	NLp15
4', 2 Lamp WA	0	Ea	31.43	0	56.54	0	0	MEp208	NLp15
4', 2 Lamp WA Wet	0	Ea	68.75	0	84.04	0	0	MEp210	MEp210
4', 2 Lamp WA w/Refl	0	Ea	31.43	0	75.54	0	0	MEp208	NLp15
4', 4 Lamp WA	0	Ea	41.50	0	71.58	0	0	MEp208	NLp15
8', 2 Lamp Indust.	0	Ea	50.00	0	84.44	0	0	MEp208	GRp917
Fixture Upgrades									
Remove Incand Lamps	3	Ea	1.38	4	0.00	0	4	MEp215	N/A
Install Integral CF									
15W w/ Elec Bal	0	Ea	1.38	0	19.95	0	0	MEp215	NLp9
20W w/ Elec Bal	0	Ea	1.38	0	19.95	0	0	MEp215	NLp9
23W w/ Elec Bal	3	Ea	1.38	4	19.95	60	64	MEp215	NLp9
28W w/ Mag Bal	0	Ea	1.38	0	29.95	0	0	MEp215	NLp10
Remove Fluor Lamps	178	Ea	1.83	326	0.00	0	326	MEp13	N/A
Remove Ballasts	89	Ea	11.00	979	0.00	0	979	MEp211	N/A
Remove Lampholders	86	Ea	2.29	197	0.00	0	197	(1)	N/A
Install T8 Lamps									
F32T8/TL70/35K	92	Ea	1.83	168	2.02	186	354	MEp13	DGSC
F96T8/TL70/35K	0	Ea	1.83	0	6.40	0	0	MEp13	OS/SYL
FB32T8/TL70/35K	0	Ea	1.83	0	9.34	0	0	MEp13	DGSC
Install T8 Ballasts									
2-F32T8 Lamps	46	Ea	11.00	506	22.50	1035	1,541	MEp211	OS/SYL
3-F32T8 Lamps	0	Ea	11.00	0	23.50	0	0	MEp211	OS/SYL
4-F32T8 Lamps	0	Ea	11.00	0	24.50	0	0	MEp211	OS/SYL
2-F96T8 Lamps	0	Ea	11.00	0	35.00	0	0	MEp211	OS/SYL
Install Reflectors									
4' Strp or Indst	0	Ea	6.88	0	7.95	0	0	(2)	NLp18
4' Wrap or Surf	0	Ea	9.17	0	15.90	0	0	(3)	NLp18
2x4 Troffer	35	Ea	11.46	401	25.35	887	1,288	(4)	NLp18
Total Bare Costs				2585		2168	\$4,753		

CONSTRUCTION COST ESTIMATE

Project: Lighting Upgrade
 Location: Pine Bluff Arsenal, AR
 Basis: Pre-Design Study
 Building: 60-060

RS&H No.: 694-1331-001
 Date: 23-Mar-95
 Estimator: W.T.Todd
 Filename: EST-SUMP.WQ1

ITEM DESCRIPTION	QUANTITY		LABOR		MATERIAL		TOTAL COST	SOURCE	
	No.	Unit	\$/Unit	Total	\$/Unit	Total		Labor	Material
Total Bare Costs				2585		2168	\$4,753		
Economy of Scale			-20.0%	-517		0	(517)	MEp360	
Subtotal				2068		2168	4,236		
City Cost Index			-30.1%	-622	-3.5%	-76	(698)	MEp388	MEp388
Subtotal				1446		2092	3,538		
OH & Profit Markups			50.0%	723	10.0%	209	932	MEpIBC	MEp3
Subtotal				2169		2301	4,470		
Sales Taxes				0	6.5%	150	150		PBA
Subtotal				2169		2451	4,620		
Contingency			10.0%	217	10.0%	245	462	MEp4	MEp4
Subtotal				2386		2696	5,082		
Design Fee	6.0%			305		0	305	PBA	
SIOH	6.0%			305		0	305	PBA	
Total Const. Cost				2996		2696	\$5,692		

LEGEND & NOTES

- Labor costs based on Means manhour estimates and labor rate (\$27.50/hr).
- DGSC Defense General Supply Center, February 1994 Catalog.
- GRp### Grainger Catalog No. 385, page ###, x 0.80 for contr price.
- MBp### Means Building Construction Cost Data, 1994, page ###.
- MEp### Means Electrical Cost Data, 1994, page ###.
- NLp### National Lighting Maintenance Supply Corp., 1995, page ###.
- OS/SYL Telephone quote from Osram/Sylvania representative.
- PBA Information provided by Pine Bluff Arsenal staff.
- (1) Assume lampholder removal takes 5 minutes each.
 - (2) Assume 15 minutes for installation of reflector.
 - (3) Assume 20 minutes for installation of reflector.
 - (4) Assume 25 minutes for installation of reflector.

CONSTRUCTION COST ESTIMATE

Project: Lighting Upgrade
 Location: Pine Bluff Arsenal, AR
 Basis: Pre-Design Study
 Building: 60-070

RS&H No.: 694-1331-001
 Date: 23-Mar-95
 Estimator: W.T.Todd
 Filename: EST-SUMP.WQ1

ITEM DESCRIPTION	QUANTITY		LABOR		MATERIAL		TOTAL COST	SOURCE	
	No.	Unit	\$/Unit	Total	\$/Unit	Total		Labor	Material
Fixture Removal									
2x2 UTF or Inc Surf	0	Ea	10.01	0	0.00	0	0	MEp17	N/A
2x4 FI Troffer	0	Ea	14.66	0	0.00	0	0	MEp17	N/A
4' FI Surf Strip	0	Ea	9.79	0	0.00	0	0	MEp18	N/A
4' FI Surf Wrap	14	Ea	13.34	187	0.00	0	187	MEp17	N/A
4' FI Pend Indust	0	Ea	12.57	0	0.00	0	0	MEp18	N/A
8' FI Pend Indust	2	Ea	16.31	33	0.00	0	33	MEp18	N/A
8' FI Surf Strip	0	Ea	11.00	0	0.00	0	0	MEp18	N/A
Low Bay Fixture	0	Ea	22.00	0	0.00	0	0	MEp18	N/A
High Bay Fixture	0	Ea	29.34	0	0.00	0	0	MEp18	N/A
Repair Plas Ceiling	14	SF	0.63	9	0.37	5	14	MBp229	MBp229
Inst. Ceiling Tile	0	SF	0.36	0	0.72	0	0	MBp237	MBp237
Fixture Installation									
11" Srf, 2-26W CFL	0	Ea	27.50	0	79.95	0	0	MEp209	NLp12
High Bay, 1-100W MH	0	Ea	95.65	0	186.27	0	0	MEp208	GRp923
4', 1 Lamp Indust.	0	Ea	36.99	0	52.34	0	0	MEp208	GRp918
4', 2 Lamp Indust.	17	Ea	38.61	656	53.24	905	1,561	MEp208	GRp917
4', 2 Lmp Ind w/Refl	0	Ea	38.61	0	58.24	0	0	MEp208	GRp918
4', 1 Lamp Strip	0	Ea	25.88	0	44.18	0	0	MEp208	GRp915
4', 2 Lamp Strip	0	Ea	27.50	0	47.99	0	0	MEp208	NLp15
2x4, 2 Lamp Surf Mt	0	Ea	35.48	0	76.04	0	0	MEp208	MEp208
2x4, 2 Lamp Troffer	0	Ea	41.50	0	58.99	0	0	MEp207	NLp15
4', 2 Lamp WA	0	Ea	31.43	0	56.54	0	0	MEp208	NLp15
4', 2 Lamp WA Wet	0	Ea	68.75	0	84.04	0	0	MEp210	MEp210
4', 2 Lamp WA w/Refl	0	Ea	31.43	0	75.54	0	0	MEp208	NLp15
4', 4 Lamp WA	0	Ea	41.50	0	71.58	0	0	MEp208	NLp15
8', 2 Lamp Indust.	0	Ea	50.00	0	84.44	0	0	MEp208	GRp917
Fixture Upgrades									
Remove Incand Lamps	0	Ea	1.38	0	0.00	0	0	MEp215	N/A
Install Integral CF									
15W w/ Elec Bal	0	Ea	1.38	0	19.95	0	0	MEp215	NLp9
20W w/ Elec Bal	0	Ea	1.38	0	19.95	0	0	MEp215	NLp9
23W w/ Elec Bal	0	Ea	1.38	0	19.95	0	0	MEp215	NLp9
28W w/ Mag Bal	0	Ea	1.38	0	29.95	0	0	MEp215	NLp10
Remove Fluor Lamps	126	Ea	1.83	231	0.00	0	231	MEp13	N/A
Remove Ballasts	63	Ea	11.00	693	0.00	0	693	MEp211	N/A
Remove Lampholders	4	Ea	2.29	9	0.00	0	9	(1)	N/A
Install T8 Lamps									
F32T8/TL70/35K	114	Ea	1.83	209	2.02	230	439	MEp13	DGSC
F96T8/TL70/35K	8	Ea	1.83	15	6.40	51	66	MEp13	OS/SYL
FB32T8/TL70/35K	0	Ea	1.83	0	9.34	0	0	MEp13	DGSC
Install T8 Ballasts									
2-F32T8 Lamps	57	Ea	11.00	627	22.50	1283	1,910	MEp211	OS/SYL
3-F32T8 Lamps	0	Ea	11.00	0	23.50	0	0	MEp211	OS/SYL
4-F32T8 Lamps	0	Ea	11.00	0	24.50	0	0	MEp211	OS/SYL
2-F96T8 Lamps	4	Ea	11.00	44	35.00	140	184	MEp211	OS/SYL
Install Reflectors									
4' Strp or Indst	0	Ea	6.88	0	7.95	0	0	(2)	NLp18
4' Wrap or Surf	0	Ea	9.17	0	15.90	0	0	(3)	NLp18
2x4 Troffer	0	Ea	11.46	0	25.35	0	0	(4)	NLp18
Total Bare Costs				2713		2614	\$5,327		

CONSTRUCTION COST ESTIMATE

Project: Lighting Upgrade
 Location: Pine Bluff Arsenal, AR
 Basis: Pre-Design Study
 Building: 60-070

RS&H No.: 694-1331-001
 Date: 23-Mar-95
 Estimator: W.T.Todd
 Filename: EST-SUMP.WQ1

ITEM DESCRIPTION	QUANTITY		LABOR		MATERIAL		TOTAL COST	SOURCE	
	No.	Unit	\$/Unit	Total	\$/Unit	Total		Labor	Material
Total Bare Costs				2713		2614	\$5,327		
Economy of Scale			-20.0%	-543		0	(543)	MEp360	
Subtotal				2170		2614	4,784		
City Cost Index			-30.1%	-653	-3.5%	-91	(744)	MEp388	MEp388
Subtotal				1517		2523	4,040		
OH & Profit Markups			50.0%	759	10.0%	252	1,011	MEpIBC	MEp3
Subtotal				2276		2775	5,051		
Sales Taxes				0	6.5%	181	181		PBA
Subtotal				2276		2956	5,232		
Contingency			10.0%	228	10.0%	296	524	MEp4	MEp4
Subtotal				2504		3252	5,756		
Design Fee	6.0%			345		0	345	PBA	
SIOH	6.0%			345		0	345	PBA	
Total Const. Cost				3194		3252	\$6,446		

LEGEND & NOTES

Labor costs based on Means manhour estimates and labor rate (\$27.50/hr).

DGSC Defense General Supply Center, February 1994 Catalog.

GRp### Grainger Catalog No. 385, page ###, x 0.80 for contr price.

MBp### Means Building Construction Cost Data, 1994, page ###.

MEp### Means Electrical Cost Data, 1994, page ###.

NLp### National Lighting Maintenance Supply Corp., 1995, page ###.

OS/SYL Telephone quote from Osram/Sylvania representative.

PBA Information provided by Pine Bluff Arsenal staff.

(1) Assume lampholder removal takes 5 minutes each.

(2) Assume 15 minutes for installation of reflector.

(3) Assume 20 minutes for installation of reflector.

(4) Assume 25 minutes for installation of reflector.

CONSTRUCTION COST ESTIMATE

Project: Lighting Upgrade
 Location: Pine Bluff Arsenal, AR
 Basis: Pre-Design Study
 Building: 60-090

RS&H No.: 694-1331-001
 Date: 23-Mar-95
 Estimator: W.T.Todd
 Filename: EST-SUMP.WQ1

ITEM DESCRIPTION	QUANTITY		LABOR		MATERIAL		TOTAL COST	SOURCE	
	No.	Unit	\$/Unit	Total	\$/Unit	Total		Labor	Material
Fixture Removal									
2x2 UTF or Inc Surf	0	Ea	10.01	0	0.00	0	0	MEp17	N/A
2x4 FI Troffer	0	Ea	14.66	0	0.00	0	0	MEp17	N/A
4' FI Surf Strip	0	Ea	9.79	0	0.00	0	0	MEp18	N/A
4' FI Surf Wrap	0	Ea	13.34	0	0.00	0	0	MEp17	N/A
4' FI Pend Indust	29	Ea	12.57	365	0.00	0	365	MEp18	N/A
8' FI Pend Indust	0	Ea	16.31	0	0.00	0	0	MEp18	N/A
8' FI Surf Strip	0	Ea	11.00	0	0.00	0	0	MEp18	N/A
Low Bay Fixture	0	Ea	22.00	0	0.00	0	0	MEp18	N/A
High Bay Fixture	0	Ea	29.34	0	0.00	0	0	MEp18	N/A
Repair Plas Ceiling	0	SF	0.63	0	0.37	0	0	MBp229	MBp229
Inst. Ceiling Tile	0	SF	0.36	0	0.72	0	0	MBp237	MBp237
Fixture Installation									
11" Srf, 2-26W CFL	0	Ea	27.50	0	79.95	0	0	MEp209	NLp12
High Bay, 1-100W MH	0	Ea	95.65	0	186.27	0	0	MEp208	GRp923
4', 1 Lamp Indust.	0	Ea	36.99	0	52.34	0	0	MEp208	GRp918
4', 2 Lamp Indust.	11	Ea	38.61	425	53.24	586	1,011	MEp208	GRp917
4', 2 Lmp Ind w/Refl	17	Ea	38.61	656	58.24	990	1,646	MEp208	GRp918
4', 1 Lamp Strip	0	Ea	25.88	0	44.18	0	0	MEp208	GRp915
4', 2 Lamp Strip	0	Ea	27.50	0	47.99	0	0	MEp208	NLp15
2x4, 2 Lamp Surf Mt	0	Ea	35.48	0	76.04	0	0	MEp208	MEp208
2x4, 2 Lamp Troffer	0	Ea	41.50	0	58.99	0	0	MEp207	NLp15
4', 2 Lamp WA	0	Ea	31.43	0	56.54	0	0	MEp208	NLp15
4', 2 Lamp WA Wet	0	Ea	68.75	0	84.04	0	0	MEp210	MEp210
4', 2 Lamp WA w/Refl	0	Ea	31.43	0	75.54	0	0	MEp208	NLp15
4', 4 Lamp WA	0	Ea	41.50	0	71.58	0	0	MEp208	NLp15
8', 2 Lamp Indust.	0	Ea	50.00	0	84.44	0	0	MEp208	GRp917
Fixture Upgrades									
Remove Incand Lamps	8	Ea	1.38	11	0.00	0	11	MEp215	N/A
Install Integral CF									
15W w/ Elec Bal	6	Ea	1.38	8	19.95	120	128	MEp215	NLp9
20W w/ Elec Bal	2	Ea	1.38	3	19.95	40	43	MEp215	NLp9
23W w/ Elec Bal	0	Ea	1.38	0	19.95	0	0	MEp215	NLp9
28W w/ Mag Bal	0	Ea	1.38	0	29.95	0	0	MEp215	NLp10
Remove Fluor Lamps	0	Ea	1.83	0	0.00	0	0	MEp13	N/A
Remove Ballasts	0	Ea	11.00	0	0.00	0	0	MEp211	N/A
Remove Lampholders	0	Ea	2.29	0	0.00	0	0	(1)	N/A
Install T8 Lamps									
F32T8/TL70/35K	0	Ea	1.83	0	2.02	0	0	MEp13	DGSC
F96T8/TL70/35K	0	Ea	1.83	0	6.40	0	0	MEp13	OS/SYL
FB32T8/TL70/35K	0	Ea	1.83	0	9.34	0	0	MEp13	DGSC
Install T8 Ballasts									
2-F32T8 Lamps	0	Ea	11.00	0	22.50	0	0	MEp211	OS/SYL
3-F32T8 Lamps	0	Ea	11.00	0	23.50	0	0	MEp211	OS/SYL
4-F32T8 Lamps	0	Ea	11.00	0	24.50	0	0	MEp211	OS/SYL
2-F96T8 Lamps	0	Ea	11.00	0	35.00	0	0	MEp211	OS/SYL
Install Reflectors									
4' Strp or Indst	0	Ea	6.88	0	7.95	0	0	(2)	NLp18
4' Wrap or Surf	0	Ea	9.17	0	15.90	0	0	(3)	NLp18
2x4 Troffer	0	Ea	11.46	0	25.35	0	0	(4)	NLp18
Total Bare Costs				1468		1736	\$3,204		

CONSTRUCTION COST ESTIMATE

Project: Lighting Upgrade
 Location: Pine Bluff Arsenal, AR
 Basis: Pre-Design Study
 Building: 60-090

RS&H No.: 694-1331-001
 Date: 23-Mar-95
 Estimator: W.T.Todd
 Filename: EST-SUMP.WQ1

ITEM DESCRIPTION	QUANTITY		LABOR		MATERIAL		TOTAL COST	SOURCE	
	No.	Unit	\$/Unit	Total	\$/Unit	Total		Labor	Material
Total Bare Costs				1468		1736	\$3,204		
Economy of Scale			-20.0%	-294		0	(294)	MEp360	
Subtotal				1174		1736	2,910		
City Cost Index			-30.1%	-353	-3.5%	-61	(414)	MEp388	MEp388
Subtotal				821		1675	2,496		
OH & Profit Markups			50.0%	411	10.0%	168	579	MEpIBC	MEp3
Subtotal				1232		1843	3,075		
Sales Taxes				0	6.5%	120	120		PBA
Subtotal				1232		1963	3,195		
Contingency			10.0%	123	10.0%	196	319	MEp4	MEp4
Subtotal				1355		2159	3,514		
Design Fee	6.0%			211		0	211	PBA	
SIOH	6.0%			211		0	211	PBA	
Total Const. Cost				1777		2159	\$3,936		

LEGEND & NOTES

Labor costs based on Means manhour estimates and labor rate (\$27.50/hr).

DGSC Defense General Supply Center, February 1994 Catalog.

GRp### Grainger Catalog No. 385, page ###, x 0.80 for contr price.

MBp### Means Building Construction Cost Data, 1994, page ###.

MEp### Means Electrical Cost Data, 1994, page ###.

NLp### National Lighting Maintenance Supply Corp., 1995, page ###.

OS/SYL Telephone quote from Osram/Sylvania representative.

PBA Information provided by Pine Bluff Arsenal staff.

(1) Assume lampholder removal takes 5 minutes each.

(2) Assume 15 minutes for installation of reflector.

(3) Assume 20 minutes for installation of reflector.

(4) Assume 25 minutes for installation of reflector.

CONSTRUCTION COST ESTIMATE

Project: Lighting Upgrade
 Location: Pine Bluff Arsenal, AR
 Basis: Pre-Design Study
 Building: 60-630

RS&H No.: 694-1331-001
 Date: 23-Mar-95
 Estimator: W.T.Todd
 Filename: EST-SUMP.WQ1

ITEM DESCRIPTION	QUANTITY		LABOR		MATERIAL		TOTAL COST	SOURCE	
	No.	Unit	\$/Unit	Total	\$/Unit	Total		Labor	Material
Fixture Removal									
2x2 UTF or Inc Surf	0	Ea	10.01	0	0.00	0	0	MEp17	N/A
2x4 FI Troffer	0	Ea	14.66	0	0.00	0	0	MEp17	N/A
4' FI Surf Strip	0	Ea	9.79	0	0.00	0	0	MEp18	N/A
4' FI Surf Wrap	0	Ea	13.34	0	0.00	0	0	MEp17	N/A
4' FI Pend Indust	0	Ea	12.57	0	0.00	0	0	MEp18	N/A
8' FI Pend Indust	0	Ea	16.31	0	0.00	0	0	MEp18	N/A
8' FI Surf Strip	0	Ea	11.00	0	0.00	0	0	MEp18	N/A
Low Bay Fixture	9	Ea	22.00	198	0.00	0	198	MEp18	N/A
High Bay Fixture	0	Ea	29.34	0	0.00	0	0	MEp18	N/A
Repair Plac Ceiling	0	SF	0.63	0	0.37	0	0	MBp229	MBp229
Inst. Ceiling Tile	0	SF	0.36	0	0.72	0	0	MBp237	MBp237
Fixture Installation									
11' Srf, 2-26W CFL	0	Ea	27.50	0	79.95	0	0	MEp209	NLp12
High Bay, 1-100W MH	0	Ea	95.65	0	186.27	0	0	MEp208	GRp923
4', 1 Lamp Indust.	0	Ea	36.99	0	52.34	0	0	MEp208	GRp918
4', 2 Lamp Indust.	0	Ea	38.61	0	53.24	0	0	MEp208	GRp917
4', 2 Lmp Ind w/Refl	0	Ea	38.61	0	58.24	0	0	MEp208	GRp918
4', 1 Lamp Strip	0	Ea	25.88	0	44.18	0	0	MEp208	GRp915
4', 2 Lamp Strip	0	Ea	27.50	0	47.99	0	0	MEp208	NLp15
2x4, 2 Lamp Surf Mt	0	Ea	35.48	0	76.04	0	0	MEp208	MEp208
2x4, 2 Lamp Troffer	0	Ea	41.50	0	58.99	0	0	MEp207	NLp15
4', 2 Lamp WA	0	Ea	31.43	0	56.54	0	0	MEp208	NLp15
4', 2 Lamp WA Wet	15	Ea	68.75	1031	84.04	1261	2,292	MEp210	MEp210
4', 2 Lamp WA w/Refl	0	Ea	31.43	0	75.54	0	0	MEp208	NLp15
4', 4 Lamp WA	0	Ea	41.50	0	71.58	0	0	MEp208	NLp15
8', 2 Lamp Indust.	0	Ea	50.00	0	84.44	0	0	MEp208	GRp917
Fixture Upgrades									
Remove Incand Lamps	1	Ea	1.38	1	0.00	0	1	MEp215	N/A
Install Integral CF									
15W w/ Elec Bal	0	Ea	1.38	0	19.95	0	0	MEp215	NLp9
20W w/ Elec Bal	1	Ea	1.38	1	19.95	20	21	MEp215	NLp9
23W w/ Elec Bal	0	Ea	1.38	0	19.95	0	0	MEp215	NLp9
28W w/ Mag Bal	0	Ea	1.38	0	29.95	0	0	MEp215	NLp10
Remove Fluor Lamps	26	Ea	1.83	48	0.00	0	48	MEp13	N/A
Remove Ballasts	13	Ea	11.00	143	0.00	0	143	MEp211	N/A
Remove Lampholders	4	Ea	2.29	9	0.00	0	9	(1)	N/A
Install T8 Lamps									
F32T8/TL70/35K	22	Ea	1.83	40	2.02	44	84	MEp13	DGSC
F96T8/TL70/35K	0	Ea	1.83	0	6.40	0	0	MEp13	OS/SYL
FB32T8/TL70/35K	0	Ea	1.83	0	9.34	0	0	MEp13	DGSC
Install T8 Ballasts									
2-F32T8 Lamps	11	Ea	11.00	121	22.50	248	369	MEp211	OS/SYL
3-F32T8 Lamps	0	Ea	11.00	0	23.50	0	0	MEp211	OS/SYL
4-F32T8 Lamps	0	Ea	11.00	0	24.50	0	0	MEp211	OS/SYL
2-F96T8 Lamps	0	Ea	11.00	0	35.00	0	0	MEp211	OS/SYL
Install Reflectors									
4' Strp or Indst	0	Ea	6.88	0	7.95	0	0	(2)	NLp18
4' Wrap or Surf	0	Ea	9.17	0	15.90	0	0	(3)	NLp18
2x4 Troffer	0	Ea	11.46	0	25.35	0	0	(4)	NLp18
Total Bare Costs				1592		1573	\$3,165		

CONSTRUCTION COST ESTIMATE

Project: Lighting Upgrade
Location: Pine Bluff Arsenal, AR
Basis: Pre-Design Study
Building: 60-630

RS&H No.: 694-1331-001
Date: 23-Mar-95
Estimator: W.T.Todd
Filename: EST-SUMP.WQ1

[illegible]

LEGEND & NOTES

Labor costs based on Means manhour estimates and labor rate (\$27.50/hr).

DGSC Defense General Supply Center, February 1994 Catalog.

GRp### Grainger Catalog No. 385, page ###, x 0.80 for contr price.

MBp### Means Building Construction Cost Data, 1994, page ###.

MEp### Means Electrical Cost Data, 1994, page ###.

NLP### National Lighting Maintenance Supply Corp., 1995, page ###.

OS/SYL Telephone quote from Osram/Sylvania representative.

PBA Information provided by Pine Bluff Arsenal staff.

- (1) Assume lampholder removal takes 5 minutes each.
- (2) Assume 15 minutes for installation of reflector.
- (3) Assume 20 minutes for installation of reflector.
- (4) Assume 25 minutes for installation of reflector.

CONSTRUCTION COST ESTIMATE

Project: Lighting Upgrade
 Location: Pine Bluff Arsenal, AR
 Basis: Pre-Design Study
 Building: 63-100

RS&H No.: 694-1331-001
 Date: 23-Mar-95
 Estimator: W.T.Todd
 Filename: EST-SUMP.WQ1

ITEM DESCRIPTION	QUANTITY		LABOR		MATERIAL		TOTAL COST	SOURCE	
	No.	Unit	\$/Unit	Total	\$/Unit	Total		Labor	Material
Fixture Removal									
2x2 UTF or Inc Surf	0	Ea	10.01	0	0.00	0	0	MEp17	N/A
2x4 FI Troffer	0	Ea	14.66	0	0.00	0	0	MEp17	N/A
4' FI Surf Strip	0	Ea	9.79	0	0.00	0	0	MEp18	N/A
4' FI Surf Wrap	0	Ea	13.34	0	0.00	0	0	MEp17	N/A
4' FI Pend Indust	9	Ea	12.57	113	0.00	0	113	MEp18	N/A
8' FI Pend Indust	7	Ea	16.31	114	0.00	0	114	MEp18	N/A
8' FI Surf Strip	0	Ea	11.00	0	0.00	0	0	MEp18	N/A
Low Bay Fixture	0	Ea	22.00	0	0.00	0	0	MEp18	N/A
High Bay Fixture	0	Ea	29.34	0	0.00	0	0	MEp18	N/A
Repair Plas Ceiling	0	SF	0.63	0	0.37	0	0	MBp229	MBp229
Inst. Ceiling Tile	0	SF	0.36	0	0.72	0	0	MBp237	MBp237
Fixture Installation									
11" Srf, 2-26W CFL	0	Ea	27.50	0	79.95	0	0	MEp209	NLp12
High Bay, 1-100W MH	0	Ea	95.65	0	186.27	0	0	MEp208	GRp923
4', 1 Lamp Indust.	0	Ea	36.99	0	52.34	0	0	MEp208	GRp918
4', 2 Lamp Indust.	0	Ea	38.61	0	53.24	0	0	MEp208	GRp917
4', 2 Lmp Ind w/Refl	0	Ea	38.61	0	58.24	0	0	MEp208	GRp918
4', 1 Lamp Strip	0	Ea	25.88	0	44.18	0	0	MEp208	GRp915
4', 2 Lamp Strip	0	Ea	27.50	0	47.99	0	0	MEp208	NLp15
2x4, 2 Lamp Surf Mt	0	Ea	35.48	0	76.04	0	0	MEp208	MEp208
2x4, 2 Lamp Troffer	0	Ea	41.50	0	58.99	0	0	MEp207	NLp15
4', 2 Lamp WA	0	Ea	31.43	0	56.54	0	0	MEp208	NLp15
4', 2 Lamp WA Wet	0	Ea	68.75	0	84.04	0	0	MEp210	MEp210
4', 2 Lamp WA w/Refl	0	Ea	31.43	0	75.54	0	0	MEp208	NLp15
4', 4 Lamp WA	0	Ea	41.50	0	71.58	0	0	MEp208	NLp15
8', 2 Lamp Indust.	0	Ea	50.00	0	84.44	0	0	MEp208	GRp917
Fixture Upgrades									
Remove Incand Lamps	0	Ea	1.38	0	0.00	0	0	MEp215	N/A
Install Integral CF									
15W w/ Elec Bal	0	Ea	1.38	0	19.95	0	0	MEp215	NLp9
20W w/ Elec Bal	0	Ea	1.38	0	19.95	0	0	MEp215	NLp9
23W w/ Elec Bal	0	Ea	1.38	0	19.95	0	0	MEp215	NLp9
28W w/ Mag Bal	0	Ea	1.38	0	29.95	0	0	MEp215	NLp10
Remove Fluor Lamps	240	Ea	1.83	439	0.00	0	439	MEp13	N/A
Remove Ballasts	120	Ea	11.00	1320	0.00	0	1,320	MEp211	N/A
Remove Lampholders	66	Ea	2.29	151	0.00	0	151	(1)	N/A
Install T8 Lamps									
F32T8/TL70/35K	92	Ea	1.83	168	2.02	186	354	MEp13	DGSC
F96T8/TL70/35K	82	Ea	1.83	150	6.40	525	675	MEp13	OS/SYL
FB32T8/TL70/35K	0	Ea	1.83	0	9.34	0	0	MEp13	DGSC
Install T8 Ballasts									
2-F32T8 Lamps	46	Ea	11.00	506	22.50	1035	1,541	MEp211	OS/SYL
3-F32T8 Lamps	0	Ea	11.00	0	23.50	0	0	MEp211	OS/SYL
4-F32T8 Lamps	0	Ea	11.00	0	24.50	0	0	MEp211	OS/SYL
2-F96T8 Lamps	41	Ea	11.00	451	35.00	1435	1,886	MEp211	OS/SYL
Install Reflectors									
4' Strp or Indst	0	Ea	6.88	0	7.95	0	0	(2)	NLp18
4' Wrap or Surf	2	Ea	9.17	18	15.90	32	50	(3)	NLp18
2x4 Troffer	0	Ea	11.46	0	25.35	0	0	(4)	NLp18
Total Bare Costs				3430		3213	\$6,643		

CONSTRUCTION COST ESTIMATE

Project: Lighting Upgrade
Location: Pine Bluff Arsenal, AR
Basis: Pre-Design Study
Building: 63-100

RS&H No.: 694-1331-001
Date: 23-Mar-95
Estimator: W.T.Todd
Filename: EST-SUMP.WQ1

[illegible]

LEGEND & NOTES

Labor costs based on Means manhour estimates and labor rate (\$27.50/hr).

DGSC Defense General Supply Center, February 1994 Catalog.

GRp### Grainger Catalog No. 385, page ###, x 0.80 for contr price.

MBp### Means Building Construction Cost Data, 1994, page ###.

MEp### Means Electrical Cost Data, 1994, page ###.

NLP### National Lighting Maintenance Supply Corp., 1995, page ###.

OS/SYL Telephone quote from Osram/Sylvania representative.

PBA Information provided by Pine Bluff Arsenal staff.

- (1) Assume lampholder removal takes 5 minutes each.
- (2) Assume 15 minutes for installation of reflector.
- (3) Assume 20 minutes for installation of reflector.
- (4) Assume 25 minutes for installation of reflector.

CONSTRUCTION COST ESTIMATE

Project: Lighting Upgrade
 Location: Pine Bluff Arsenal, AR
 Basis: Pre-Design Study
 Building: 63-110

RS&H No.: 694-1331-001
 Date: 23-Mar-95
 Estimator: W.T.Todd
 Filename: EST-SUMP.WQ1

ITEM DESCRIPTION	QUANTITY		LABOR		MATERIAL		TOTAL COST	SOURCE	
	No.	Unit	\$/Unit	Total	\$/Unit	Total		Labor	Material
Fixture Removal									
2x2 UTF or Inc Surf	0	Ea	10.01	0	0.00	0	0	MEp17	N/A
2x4 FI Troffer	2	Ea	14.66	29	0.00	0	29	MEp17	N/A
4' FI Surf Strip	0	Ea	9.79	0	0.00	0	0	MEp18	N/A
4' FI Surf Wrap	2	Ea	13.34	27	0.00	0	27	MEp17	N/A
4' FI Pend Indust	0	Ea	12.57	0	0.00	0	0	MEp18	N/A
8' FI Pend Indust	0	Ea	16.31	0	0.00	0	0	MEp18	N/A
8' FI Surf Strip	0	Ea	11.00	0	0.00	0	0	MEp18	N/A
Low Bay Fixture	0	Ea	22.00	0	0.00	0	0	MEp18	N/A
High Bay Fixture	0	Ea	29.34	0	0.00	0	0	MEp18	N/A
Repair Plas Ceiling	2	SF	0.63	1	0.37	1	2	MBp229	MBp229
Inst. Ceiling Tile	16	SF	0.36	6	0.72	12	18	MBp237	MBp237
Fixture Installation									
11" Srf, 2-26W CFL	0	Ea	27.50	0	79.95	0	0	MEp209	NLp12
High Bay, 1-100W MH	0	Ea	95.65	0	186.27	0	0	MEp208	GRp923
4', 1 Lamp Indust.	0	Ea	36.99	0	52.34	0	0	MEp208	GRp918
4', 2 Lamp Indust.	0	Ea	38.61	0	53.24	0	0	MEp208	GRp917
4', 2 Lmp Ind w/Refl	0	Ea	38.61	0	58.24	0	0	MEp208	GRp918
4', 1 Lamp Strip	0	Ea	25.88	0	44.18	0	0	MEp208	GRp915
4', 2 Lamp Strip	0	Ea	27.50	0	47.99	0	0	MEp208	NLp15
2x4, 2 Lamp Surf Mt	0	Ea	35.48	0	76.04	0	0	MEp208	MEp208
2x4, 2 Lamp Troffer	0	Ea	41.50	0	58.99	0	0	MEp207	NLp15
4', 2 Lamp WA	0	Ea	31.43	0	56.54	0	0	MEp208	NLp15
4', 2 Lamp WA Wet	0	Ea	68.75	0	84.04	0	0	MEp210	MEp210
4', 2 Lamp WA w/Refl	0	Ea	31.43	0	75.54	0	0	MEp208	NLp15
4', 4 Lamp WA	0	Ea	41.50	0	71.58	0	0	MEp208	NLp15
8', 2 Lamp Indust.	0	Ea	50.00	0	84.44	0	0	MEp208	GRp917
Fixture Upgrades									
Remove Incand Lamps	0	Ea	1.38	0	0.00	0	0	MEp215	N/A
Install Integral CF									
15W w/ Elec Bal	0	Ea	1.38	0	19.95	0	0	MEp215	NLp9
20W w/ Elec Bal	0	Ea	1.38	0	19.95	0	0	MEp215	NLp9
23W w/ Elec Bal	0	Ea	1.38	0	19.95	0	0	MEp215	NLp9
28W w/ Mag Bal	0	Ea	1.38	0	29.95	0	0	MEp215	NLp10
Remove Fluor Lamps	290	Ea	1.83	531	0.00	0	531	MEp13	N/A
Remove Ballasts	145	Ea	11.00	1595	0.00	0	1,595	MEp211	N/A
Remove Lampholders	140	Ea	2.29	321	0.00	0	321	(1)	N/A
Install T8 Lamps									
F32T8/TL70/35K	138	Ea	1.83	253	2.02	279	532	MEp13	DGSC
F96T8/TL70/35K	18	Ea	1.83	33	6.40	115	148	MEp13	OS/SYL
FB32T8/TL70/35K	0	Ea	1.83	0	9.34	0	0	MEp13	DGSC
Install T8 Ballasts									
2-F32T8 Lamps	60	Ea	11.00	660	22.50	1350	2,010	MEp211	OS/SYL
3-F32T8 Lamps	6	Ea	11.00	66	23.50	141	207	MEp211	OS/SYL
4-F32T8 Lamps	0	Ea	11.00	0	24.50	0	0	MEp211	OS/SYL
2-F96T8 Lamps	9	Ea	11.00	99	35.00	315	414	MEp211	OS/SYL
Install Reflectors									
4' Strp or Indst	0	Ea	6.88	0	7.95	0	0	(2)	NLp18
4' Wrap or Surf	0	Ea	9.17	0	15.90	0	0	(3)	NLp18
2x4 Troffer	0	Ea	11.46	0	25.35	0	0	(4)	NLp18
Total Bare Costs				3621		2213	\$5,834		

CONSTRUCTION COST ESTIMATE

Project: Lighting Upgrade
 Location: Pine Bluff Arsenal, AR
 Basis: Pre-Design Study
 Building: 63-110

RS&H No.: 694-1331-001
 Date: 23-Mar-95
 Estimator: W.T.Todd
 Filename: EST-SUMP.WQ1

ITEM DESCRIPTION	QUANTITY		LABOR		MATERIAL		TOTAL COST	SOURCE	
	No.	Unit	\$/Unit	Total	\$/Unit	Total		Labor	Material
Total Bare Costs				3621		2213	\$5,834		
Economy of Scale			-20.0%	-724		0	(724)	MEp360	
Subtotal				2897		2213	5,110		
City Cost Index			-30.1%	-872	-3.5%	-77	(949)	MEp388	MEp388
Subtotal				2025		2136	4,161		
OH & Profit Markups			50.0%	1013	10.0%	214	1,227	MEpIBC	MEp3
Subtotal				3038		2350	5,388		
Sales Taxes				0	6.5%	153	153		PBA
Subtotal				3038		2503	5,541		
Contingency			10.0%	304	10.0%	250	554	MEp4	MEp4
Subtotal				3342		2753	6,095		
Design Fee	6.0%			366		0	366	PBA	
SIOH	6.0%			366		0	366	PBA	
Total Const. Cost				4074		2753	\$6,827		

LEGEND & NOTES

Labor costs based on Means manhour estimates and labor rate (\$27.50/hr).

DGSC Defense General Supply Center, February 1994 Catalog.

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MBp### Means Building Construction Cost Data, 1994, page ###.

MEp### Means Electrical Cost Data, 1994, page ###.

NLP### National Lighting Maintenance Supply Corp., 1995, page ###.

OS/SYL Telephone quote from Osram/Sylvania representative.

PBA Information provided by Pine Bluff Arsenal staff.

(1) Assume lampholder removal takes 5 minutes each.

(2) Assume 15 minutes for installation of reflector.

(3) Assume 20 minutes for installation of reflector.

(4) Assume 25 minutes for installation of reflector.

CONSTRUCTION COST ESTIMATE

Project: Lighting Upgrade
 Location: Pine Bluff Arsenal, AR
 Basis: Pre-Design Study
 Building: 63-120

RS&H No.: 694-1331-001
 Date: 23-Mar-95
 Estimator: W.T.Todd
 Filename: EST-SUMP.WQ1

ITEM DESCRIPTION	QUANTITY		LABOR		MATERIAL		TOTAL COST	SOURCE	
	No.	Unit	\$/Unit	Total	\$/Unit	Total		Labor	Material
Fixture Removal									
2x2 UTF or Inc Surf	0	Ea	10.01	0	0.00	0	0	MEp17	N/A
2x4 FI Troffer	1	Ea	14.66	15	0.00	0	15	MEp17	N/A
4' FI Surf Strip	0	Ea	9.79	0	0.00	0	0	MEp18	N/A
4' FI Surf Wrap	0	Ea	13.34	0	0.00	0	0	MEp17	N/A
4' FI Pend Indust	0	Ea	12.57	0	0.00	0	0	MEp18	N/A
8' FI Pend Indust	0	Ea	16.31	0	0.00	0	0	MEp18	N/A
8' FI Surf Strip	0	Ea	11.00	0	0.00	0	0	MEp18	N/A
Low Bay Fixture	0	Ea	22.00	0	0.00	0	0	MEp18	N/A
High Bay Fixture	0	Ea	29.34	0	0.00	0	0	MEp18	N/A
Repair Plas Ceiling	0	SF	0.63	0	0.37	0	0	MBp229	MBp229
Inst. Ceiling Tile	8	SF	0.36	3	0.72	6	9	MBp237	MBp237
Fixture Installation									
11" Srf, 2-26W CFL	0	Ea	27.50	0	79.95	0	0	MEp209	NLp12
High Bay, 1-100W MH	0	Ea	95.65	0	186.27	0	0	MEp208	GRp923
4', 1 Lamp Indust.	0	Ea	36.99	0	52.34	0	0	MEp208	GRp918
4', 2 Lamp Indust.	0	Ea	38.61	0	53.24	0	0	MEp208	GRp917
4', 2 Lmp Ind w/Refl	0	Ea	38.61	0	58.24	0	0	MEp208	GRp918
4', 1 Lamp Strip	0	Ea	25.88	0	44.18	0	0	MEp208	GRp915
4', 2 Lamp Strip	0	Ea	27.50	0	47.99	0	0	MEp208	NLp15
2x4, 2 Lamp Surf Mt	0	Ea	35.48	0	76.04	0	0	MEp208	MEp208
2x4, 2 Lamp Troffer	0	Ea	41.50	0	58.99	0	0	MEp207	NLp15
4', 2 Lamp WA	0	Ea	31.43	0	56.54	0	0	MEp208	NLp15
4', 2 Lamp WA Wet	0	Ea	68.75	0	84.04	0	0	MEp210	MEp210
4', 2 Lamp WA w/Refl	0	Ea	31.43	0	75.54	0	0	MEp208	NLp15
4', 4 Lamp WA	0	Ea	41.50	0	71.58	0	0	MEp208	NLp15
8', 2 Lamp Indust.	0	Ea	50.00	0	84.44	0	0	MEp208	GRp917
Fixture Upgrades									
Remove Incand Lamps	2	Ea	1.38	3	0.00	0	3	MEp215	N/A
Install Integral CF									
15W w/ Elec Bal	0	Ea	1.38	0	19.95	0	0	MEp215	NLp9
20W w/ Elec Bal	0	Ea	1.38	0	19.95	0	0	MEp215	NLp9
23W w/ Elec Bal	2	Ea	1.38	3	19.95	40	43	MEp215	NLp9
28W w/ Mag Bal	0	Ea	1.38	0	29.95	0	0	MEp215	NLp10
Remove Fluor Lamps	56	Ea	1.83	102	0.00	0	102	MEp13	N/A
Remove Ballasts	28	Ea	11.00	308	0.00	0	308	MEp211	N/A
Remove Lampholders	14	Ea	2.29	32	0.00	0	32	(1)	N/A
Install T8 Lamps									
F32T8/TL70/35K	22	Ea	1.83	40	2.02	44	84	MEp13	DGSC
F96T8/TL70/35K	20	Ea	1.83	37	6.40	128	165	MEp13	OS/SYL
FB32T8/TL70/35K	0	Ea	1.83	0	9.34	0	0	MEp13	DGSC
Install T8 Ballasts									
2-F32T8 Lamps	11	Ea	11.00	121	22.50	248	369	MEp211	OS/SYL
3-F32T8 Lamps	0	Ea	11.00	0	23.50	0	0	MEp211	OS/SYL
4-F32T8 Lamps	0	Ea	11.00	0	24.50	0	0	MEp211	OS/SYL
2-F96T8 Lamps	10	Ea	11.00	110	35.00	350	460	MEp211	OS/SYL
Install Reflectors									
4' Strp or Indst	0	Ea	6.88	0	7.95	0	0	(2)	NLp18
4' Wrap or Surf	0	Ea	9.17	0	15.90	0	0	(3)	NLp18
2x4 Troffer	0	Ea	11.46	0	25.35	0	0	(4)	NLp18
Total Bare Costs				774		816	\$1,590		

CONSTRUCTION COST ESTIMATE

Project: Lighting Upgrade
 Location: Pine Bluff Arsenal, AR
 Basis: Pre-Design Study
 Building: 63-120

RS&H No.: 694-1331-001
 Date: 23-Mar-95
 Estimator: W.T.Todd
 Filename: EST-SUMP.WQ1

ITEM DESCRIPTION	QUANTITY		LABOR		MATERIAL		TOTAL COST	SOURCE	
	No.	Unit	\$/Unit	Total	\$/Unit	Total		Labor	Material
Total Bare Costs				774		816	\$1,590		
Economy of Scale			-20.0%	-155		0	(155)	MEp360	
Subtotal				619		816	1,435		
City Cost Index			-30.1%	-186	-3.5%	-29	(215)	MEp388	MEp388
Subtotal				433		787	1,220		
OH & Profit Markups			50.0%	217	10.0%	79	296	MEpIBC	MEp3
Subtotal				650		866	1,516		
Sales Taxes				0	6.5%	56	56		PBA
Subtotal				650		922	1,572		
Contingency			10.0%	65	10.0%	92	157	MEp4	MEp4
Subtotal				715		1014	1,729		
Design Fee	6.0%			104		0	104	PBA	
SIOH	6.0%			104		0	104	PBA	
Total Const. Cost				923		1014	\$1,937		

LEGEND & NOTES

Labor costs based on Means manhour estimates and labor rate (\$27.50/hr).

DGSC Defense General Supply Center, February 1994 Catalog.

GRp### Grainger Catalog No. 385, page ###, x 0.80 for contr price.

MBp### Means Building Construction Cost Data, 1994, page ###.

MEp### Means Electrical Cost Data, 1994, page ###.

NLp### National Lighting Maintenance Supply Corp., 1995, page ###.

OS/SYL Telephone quote from Osram/Sylvania representative.

PBA Information provided by Pine Bluff Arsenal staff.

(1) Assume lampholder removal takes 5 minutes each.

(2) Assume 15 minutes for installation of reflector.

(3) Assume 20 minutes for installation of reflector.

(4) Assume 25 minutes for installation of reflector.

CONSTRUCTION COST ESTIMATE

Project: Lighting Upgrade
 Location: Pine Bluff Arsenal, AR
 Basis: Pre-Design Study
 Building: 63-200

RS&H No.: 694-1331-001
 Date: 23-Mar-95
 Estimator: W.T.Todd
 Filename: EST-SUMP.WQ1

ITEM DESCRIPTION	QUANTITY		LABOR		MATERIAL		TOTAL COST	SOURCE	
	No.	Unit	\$/Unit	Total	\$/Unit	Total		Labor	Material
Fixture Removal									
2x2 UTF or Inc Surf	0	Ea	10.01	0	0.00	0	0	MEp17	N/A
2x4 FI Troffer	0	Ea	14.66	0	0.00	0	0	MEp17	N/A
4' FI Surf Strip	0	Ea	9.79	0	0.00	0	0	MEp18	N/A
4' FI Surf Wrap	0	Ea	13.34	0	0.00	0	0	MEp17	N/A
4' FI Pend Indust	0	Ea	12.57	0	0.00	0	0	MEp18	N/A
8' FI Pend Indust	0	Ea	16.31	0	0.00	0	0	MEp18	N/A
8' FI Surf Strip	0	Ea	11.00	0	0.00	0	0	MEp18	N/A
Low Bay Fixture	0	Ea	22.00	0	0.00	0	0	MEp18	N/A
High Bay Fixture	0	Ea	29.34	0	0.00	0	0	MEp18	N/A
Repair Plas Ceiling	0	SF	0.63	0	0.37	0	0	MBp229	MBp229
Inst. Ceiling Tile	0	SF	0.36	0	0.72	0	0	MBp237	MBp237
Fixture Installation									
11" Srf, 2-26W CFL	0	Ea	27.50	0	79.95	0	0	MEp209	NLp12
High Bay, 1-100W MH	0	Ea	95.65	0	186.27	0	0	MEp208	GRp923
4', 1 Lamp Indust.	0	Ea	36.99	0	52.34	0	0	MEp208	GRp918
4', 2 Lamp Indust.	0	Ea	38.61	0	53.24	0	0	MEp208	GRp917
4', 2 Lmp Ind w/Refl	0	Ea	38.61	0	58.24	0	0	MEp208	GRp918
4', 1 Lamp Strip	0	Ea	25.88	0	44.18	0	0	MEp208	GRp915
4', 2 Lamp Strip	0	Ea	27.50	0	47.99	0	0	MEp208	NLp15
2x4, 2 Lamp Surf Mt	0	Ea	35.48	0	76.04	0	0	MEp208	MEp208
2x4, 2 Lamp Troffer	0	Ea	41.50	0	58.99	0	0	MEp207	NLp15
4', 2 Lamp WA	0	Ea	31.43	0	56.54	0	0	MEp208	NLp15
4', 2 Lamp WA Wet	0	Ea	68.75	0	84.04	0	0	MEp210	MEp210
4', 2 Lamp WA w/Refl	0	Ea	31.43	0	75.54	0	0	MEp208	NLp15
4', 4 Lamp WA	0	Ea	41.50	0	71.58	0	0	MEp208	NLp15
8', 2 Lamp Indust.	0	Ea	50.00	0	84.44	0	0	MEp208	GRp917
Fixture Upgrades									
Remove Incand Lamps	0	Ea	1.38	0	0.00	0	0	MEp215	N/A
Install Integral CF									
15W w/ Elec Bal	0	Ea	1.38	0	19.95	0	0	MEp215	NLp9
20W w/ Elec Bal	0	Ea	1.38	0	19.95	0	0	MEp215	NLp9
23W w/ Elec Bal	0	Ea	1.38	0	19.95	0	0	MEp215	NLp9
28W w/ Mag Bal	0	Ea	1.38	0	29.95	0	0	MEp215	NLp10
Remove Fluor Lamps	398	Ea	1.83	728	0.00	0	728	MEp13	N/A
Remove Ballasts	199	Ea	11.00	2189	0.00	0	2,189	MEp211	N/A
Remove Lampholders	54	Ea	2.29	124	0.00	0	124	(1)	N/A
Install T8 Lamps									
F32T8/TL70/35K	344	Ea	1.83	630	2.02	695	1,325	MEp13	DGSC
F96T8/TL70/35K	0	Ea	1.83	0	6.40	0	0	MEp13	OS/SYL
FB32T8/TL70/35K	0	Ea	1.83	0	9.34	0	0	MEp13	DGSC
Install T8 Ballasts									
2-F32T8 Lamps	36	Ea	11.00	396	22.50	810	1,206	MEp211	OS/SYL
3-F32T8 Lamps	0	Ea	11.00	0	23.50	0	0	MEp211	OS/SYL
4-F32T8 Lamps	68	Ea	11.00	748	24.50	1666	2,414	MEp211	OS/SYL
2-F96T8 Lamps	0	Ea	11.00	0	35.00	0	0	MEp211	OS/SYL
Install Reflectors									
4' Strp or Indst	0	Ea	6.88	0	7.95	0	0	(2)	NLp18
4' Wrap or Surf	0	Ea	9.17	0	15.90	0	0	(3)	NLp18
2x4 Troffer	14	Ea	11.46	160	25.35	355	515	(4)	NLp18
Total Bare Costs				4975		3526	\$8,501		

CONSTRUCTION COST ESTIMATE

Project: Lighting Upgrade
 Location: Pine Bluff Arsenal, AR
 Basis: Pre-Design Study
 Building: 63-200

RS&H No.: 694-1331-001
 Date: 23-Mar-95
 Estimator: W.T.Todd
 Filename: EST-SUMP.WQ1

ITEM DESCRIPTION	QUANTITY		LABOR		MATERIAL		TOTAL COST	SOURCE	
	No.	Unit	\$/Unit	Total	\$/Unit	Total		Labor	Material
Total Bare Costs				4975		3526	\$8,501		
Economy of Scale			-20.0%	-995		0	(995)	MEp360	
Subtotal				3980		3526	7,506		
City Cost Index			-30.1%	-1198	-3.5%	-123	(1,321)	MEp388	MEp388
Subtotal				2782		3403	6,185		
OH & Profit Markups			50.0%	1391	10.0%	340	1,731	MEpIBC	MEp3
Subtotal				4173		3743	7,916		
Sales Taxes				0	6.5%	244	244		PBA
Subtotal				4173		3987	8,160		
Contingency			10.0%	417	10.0%	399	816	MEp4	MEp4
Subtotal				4590		4386	8,976		
Design Fee	6.0%			539		0	539	PBA	
SIOH	6.0%			539		0	539	PBA	
Total Const. Cost				5668		4386	\$10,054		

LEGEND & NOTES

Labor costs based on Means manhour estimates and labor rate (\$27.50/hr).

DGSC Defense General Supply Center, February 1994 Catalog.

GRp### Grainger Catalog No. 385, page ###, x 0.80 for contr price.

MBp### Means Building Construction Cost Data, 1994, page ###.

MEp### Means Electrical Cost Data, 1994, page ###.

NLp### National Lighting Maintenance Supply Corp., 1995, page ###.

OS/SYL Telephone quote from Osram/Sylvania representative.

PBA Information provided by Pine Bluff Arsenal staff.

(1) Assume lampholder removal takes 5 minutes each.

(2) Assume 15 minutes for installation of reflector.

(3) Assume 20 minutes for installation of reflector.

(4) Assume 25 minutes for installation of reflector.

CONSTRUCTION COST ESTIMATE

Project: Lighting Upgrade
 Location: Pine Bluff Arsenal, AR
 Basis: Pre-Design Study
 Building: 63-210

RS&H No.: 694-1331-001
 Date: 23-Mar-95
 Estimator: W.T.Todd
 Filename: EST-SUMP.WQ1

ITEM DESCRIPTION	QUANTITY		LABOR		MATERIAL		TOTAL COST	SOURCE	
	No.	Unit	\$/Unit	Total	\$/Unit	Total		Labor	Material
Fixture Removal									
2x2 UTF or Inc Surf	0	Ea	10.01	0	0.00	0	0	MEp17	N/A
2x4 FI Troffer	0	Ea	14.66	0	0.00	0	0	MEp17	N/A
4' FI Surf Strip	0	Ea	9.79	0	0.00	0	0	MEp18	N/A
4' FI Surf Wrap	0	Ea	13.34	0	0.00	0	0	MEp17	N/A
4' FI Pend Indust	0	Ea	12.57	0	0.00	0	0	MEp18	N/A
8' FI Pend Indust	15	Ea	16.31	245	0.00	0	245	MEp18	N/A
8' FI Surf Strip	0	Ea	11.00	0	0.00	0	0	MEp18	N/A
Low Bay Fixture	0	Ea	22.00	0	0.00	0	0	MEp18	N/A
High Bay Fixture	0	Ea	29.34	0	0.00	0	0	MEp18	N/A
Repair Plas Ceiling	0	SF	0.63	0	0.37	0	0	MBp229	MBp229
Inst. Ceiling Tile	0	SF	0.36	0	0.72	0	0	MBp237	MBp237
Fixture Installation									
11" Srf, 2-26W CFL	0	Ea	27.50	0	79.95	0	0	MEp209	NLp12
High Bay, 1-100W MH	0	Ea	95.65	0	186.27	0	0	MEp208	GRp923
4', 1 Lamp Indust.	0	Ea	36.99	0	52.34	0	0	MEp208	GRp918
4', 2 Lamp Indust.	0	Ea	38.61	0	53.24	0	0	MEp208	GRp917
4', 2 Lmp Ind w/Refl	0	Ea	38.61	0	58.24	0	0	MEp208	GRp918
4', 1 Lamp Strip	0	Ea	25.88	0	44.18	0	0	MEp208	GRp915
4', 2 Lamp Strip	0	Ea	27.50	0	47.99	0	0	MEp208	NLp15
2x4, 2 Lamp Surf Mt	0	Ea	35.48	0	76.04	0	0	MEp208	MEp208
2x4, 2 Lamp Troffer	0	Ea	41.50	0	58.99	0	0	MEp207	NLp15
4', 2 Lamp WA	0	Ea	31.43	0	56.54	0	0	MEp208	NLp15
4', 2 Lamp WA Wet	0	Ea	68.75	0	84.04	0	0	MEp210	MEp210
4', 2 Lamp WA w/Refl	0	Ea	31.43	0	75.54	0	0	MEp208	NLp15
4', 4 Lamp WA	0	Ea	41.50	0	71.58	0	0	MEp208	NLp15
8', 2 Lamp Indust.	0	Ea	50.00	0	84.44	0	0	MEp208	GRp917
Fixture Upgrades									
Remove Incand Lamps	0	Ea	1.38	0	0.00	0	0	MEp215	N/A
Install Integral CF									
15W w/ Elec Bal	0	Ea	1.38	0	19.95	0	0	MEp215	NLp9
20W w/ Elec Bal	0	Ea	1.38	0	19.95	0	0	MEp215	NLp9
23W w/ Elec Bal	0	Ea	1.38	0	19.95	0	0	MEp215	NLp9
28W w/ Mag Bal	0	Ea	1.38	0	29.95	0	0	MEp215	NLp10
Remove Fluor Lamps	170	Ea	1.83	311	0.00	0	311	MEp13	N/A
Remove Ballasts	85	Ea	11.00	935	0.00	0	935	MEp211	N/A
Remove Lampholders	0	Ea	2.29	0	0.00	0	0	(1)	N/A
Install T8 Lamps									
F32T8/TL70/35K	70	Ea	1.83	128	2.02	141	269	MEp13	DGSC
F96T8/TL70/35K	100	Ea	1.83	183	6.40	640	823	MEp13	OS/SYL
FB32T8/TL70/35K	0	Ea	1.83	0	9.34	0	0	MEp13	DGSC
Install T8 Ballasts									
2-F32T8 Lamps	35	Ea	11.00	385	22.50	788	1,173	MEp211	OS/SYL
3-F32T8 Lamps	0	Ea	11.00	0	23.50	0	0	MEp211	OS/SYL
4-F32T8 Lamps	0	Ea	11.00	0	24.50	0	0	MEp211	OS/SYL
2-F96T8 Lamps	50	Ea	11.00	550	35.00	1750	2,300	MEp211	OS/SYL
Install Reflectors									
4' Strp or Indst	0	Ea	6.88	0	7.95	0	0	(2)	NLp18
4' Wrap or Surf	0	Ea	9.17	0	15.90	0	0	(3)	NLp18
2x4 Troffer	0	Ea	11.46	0	25.35	0	0	(4)	NLp18
Total Bare Costs				2737		3319	\$6,056		

CONSTRUCTION COST ESTIMATE

Project: Lighting Upgrade
 Location: Pine Bluff Arsenal, AR
 Basis: Pre-Design Study
 Building: 63-210

RS&H No.: 694-1331-001
 Date: 23-Mar-95
 Estimator: W.T.Todd
 Filename: EST-SUMP.WQ1

ITEM DESCRIPTION	QUANTITY		LABOR		MATERIAL		TOTAL COST	SOURCE	
	No.	Unit	\$/Unit	Total	\$/Unit	Total		Labor	Material
Total Bare Costs				2737		3319	\$6,056		
Economy of Scale			-20.0%	-547		0	(547)	MEp360	
Subtotal				2190		3319	5,509		
City Cost Index			-30.1%	-659	-3.5%	-116	(775)	MEp388	MEp388
Subtotal				1531		3203	4,734		
OH & Profit Markups			50.0%	766	10.0%	320	1,086	MEpIBC	MEp3
Subtotal				2297		3523	5,820		
Sales Taxes				0	6.5%	229	229		PBA
Subtotal				2297		3752	6,049		
Contingency			10.0%	230	10.0%	375	605	MEp4	MEp4
Subtotal				2527		4127	6,654		
Design Fee	6.0%			399		0	399	PBA	
SIOH	6.0%			399		0	399	PBA	
Total Const. Cost				3325		4127	\$7,452		

LEGEND & NOTES

Labor costs based on Means manhour estimates and labor rate (\$27.50/hr).

DGSC Defense General Supply Center, February 1994 Catalog.

GRp### Grainger Catalog No. 385, page ###, x 0.80 for contr price.

MBp### Means Building Construction Cost Data, 1994, page ###.

MEp### Means Electrical Cost Data, 1994, page ###.

NLp### National Lighting Maintenance Supply Corp., 1995, page ###.

OS/SYL Telephone quote from Osram/Sylvania representative.

PBA Information provided by Pine Bluff Arsenal staff.

(1) Assume lampholder removal takes 5 minutes each.

(2) Assume 15 minutes for installation of reflector.

(3) Assume 20 minutes for installation of reflector.

(4) Assume 25 minutes for installation of reflector.

CONSTRUCTION COST ESTIMATE

Project: Lighting Upgrade
 Location: Pine Bluff Arsenal, AR
 Basis: Pre-Design Study
 Building: 63-410

RS&H No.: 694-1331-001
 Date: 23-Mar-95
 Estimator: W.T.Todd
 Filename: EST-SUMP.WQ1

ITEM DESCRIPTION	QUANTITY		LABOR		MATERIAL		TOTAL COST	SOURCE	
	No.	Unit	\$/Unit	Total	\$/Unit	Total		Labor	Material
Fixture Removal									
2x2 UTF or Inc Surf	0	Ea	10.01	0	0.00	0	0	MEp17	N/A
2x4 FI Troffer	0	Ea	14.66	0	0.00	0	0	MEp17	N/A
4' FI Surf Strip	0	Ea	9.79	0	0.00	0	0	MEp18	N/A
4' FI Surf Wrap	97	Ea	13.34	1294	0.00	0	1,294	MEp17	N/A
4' FI Pend Indust	0	Ea	12.57	0	0.00	0	0	MEp18	N/A
8' FI Pend Indust	0	Ea	16.31	0	0.00	0	0	MEp18	N/A
8' FI Surf Strip	0	Ea	11.00	0	0.00	0	0	MEp18	N/A
Low Bay Fixture	0	Ea	22.00	0	0.00	0	0	MEp18	N/A
High Bay Fixture	0	Ea	29.34	0	0.00	0	0	MEp18	N/A
Repair Plas Ceiling	97	SF	0.63	61	0.37	36	97	MBp229	MBp229
Inst. Ceiling Tile	0	SF	0.36	0	0.72	0	0	MBp237	MBp237
Fixture Installation									
11" Srf, 2-26W CFL	0	Ea	27.50	0	79.95	0	0	MEp209	NLp12
High Bay, 1-100W MH	0	Ea	95.65	0	186.27	0	0	MEp208	GRp923
4', 1 Lamp Indust.	0	Ea	36.99	0	52.34	0	0	MEp208	GRp918
4', 2 Lamp Indust.	0	Ea	38.61	0	53.24	0	0	MEp208	GRp917
4', 2 Lmp Ind w/Refl	0	Ea	38.61	0	58.24	0	0	MEp208	GRp918
4', 1 Lamp Strip	73	Ea	25.88	1889	44.18	3225	5,114	MEp208	GRp915
4', 2 Lamp Strip	0	Ea	27.50	0	47.99	0	0	MEp208	NLp15
2x4, 2 Lamp Surf Mt	0	Ea	35.48	0	76.04	0	0	MEp208	MEp208
2x4, 2 Lamp Troffer	0	Ea	41.50	0	58.99	0	0	MEp207	NLp15
4', 2 Lamp WA	20	Ea	31.43	629	56.54	1131	1,760	MEp208	NLp15
4', 2 Lamp WA Wet	0	Ea	68.75	0	84.04	0	0	MEp210	MEp210
4', 2 Lamp WA w/Refl	0	Ea	31.43	0	75.54	0	0	MEp208	NLp15
4', 4 Lamp WA	0	Ea	41.50	0	71.58	0	0	MEp208	NLp15
8', 2 Lamp Indust.	0	Ea	50.00	0	84.44	0	0	MEp208	GRp917
Fixture Upgrades									
Remove Incand Lamps	0	Ea	1.38	0	0.00	0	0	MEp215	N/A
Install Integral CF									
15W w/ Elec Bal	0	Ea	1.38	0	19.95	0	0	MEp215	NLp9
20W w/ Elec Bal	0	Ea	1.38	0	19.95	0	0	MEp215	NLp9
23W w/ Elec Bal	0	Ea	1.38	0	19.95	0	0	MEp215	NLp9
28W w/ Mag Bal	0	Ea	1.38	0	29.95	0	0	MEp215	NLp10
Remove Fluor Lamps	55	Ea	1.83	101	0.00	0	101	MEp13	N/A
Remove Ballasts	55	Ea	11.00	605	0.00	0	605	MEp211	N/A
Remove Lampholders	0	Ea	2.29	0	0.00	0	0	(1)	N/A
Install T8 Lamps									
F32T8/TL70/35K	55	Ea	1.83	101	2.02	111	212	MEp13	DGSC
F96T8/TL70/35K	0	Ea	1.83	0	6.40	0	0	MEp13	OS/SYL
FB32T8/TL70/35K	0	Ea	1.83	0	9.34	0	0	MEp13	DGSC
Install T8 Ballasts									
2-F32T8 Lamps	55	Ea	11.00	605	22.50	1238	1,843	MEp211	OS/SYL
3-F32T8 Lamps	0	Ea	11.00	0	23.50	0	0	MEp211	OS/SYL
4-F32T8 Lamps	0	Ea	11.00	0	24.50	0	0	MEp211	OS/SYL
2-F96T8 Lamps	0	Ea	11.00	0	35.00	0	0	MEp211	OS/SYL
Install Reflectors									
4' Strp or Indst	0	Ea	6.88	0	7.95	0	0	(2)	NLp18
4' Wrap or Surf	0	Ea	9.17	0	15.90	0	0	(3)	NLp18
2x4 Troffer	0	Ea	11.46	0	25.35	0	0	(4)	NLp18
Total Bare Costs				5285		5741	\$11,026		

CONSTRUCTION COST ESTIMATE

Project: Lighting Upgrade
Location: Pine Bluff Arsenal, AR
Basis: Pre-Design Study
Building: 63-410

RS&H No.: 694-1331-001
Date: 23-Mar-95
Estimator: W.T.Todd
Filename: EST-SUMP.WQ1

[illegible]

LEGEND & NOTES

Labor costs based on Means manhour estimates and labor rate (\$27.50/hr).

DGSC Defense General Supply Center, February 1994 Catalog.

GRp### Grainger Catalog No. 385, page ###, x 0.80 for contr price.

MBp### Means Building Construction Cost Data, 1994, page ###.

MEp### Means Electrical Cost Data, 1994, page ###.

NLP### National Lighting Maintenance Supply Corp., 1995, page ###.

OS/SYL Telephone quote from Osram/Sylvania representative.

PBA Information provided by Pine Bluff Arsenal staff.

- (1) Assume lampholder removal takes 5 minutes each.
- (2) Assume 15 minutes for installation of reflector.
- (3) Assume 20 minutes for installation of reflector.
- (4) Assume 25 minutes for installation of reflector.

Construction Cost Estimate

SHEET OF

AE FILE NO.

694-1331-001

DATE _____

3-23-95

ESTIMATOR

WTT

CHECKER

PROJECT

Lighting Upgrade

Location

Pine Bluff Arsenal, AR

BASIS FOR ESTIMATE

☒ PRE-DESIGN STUDY

□ SCHEMATIC DESIGN

□ DESIGN DEVELOPMENT

☐ FINAL DESIGN

SUMMARY	QUANTITY		LABOR ②		MATERIAL ①		TOTAL COST
	NO. UNITS	UNIT MEAS.	PER UNIT	TOTAL	PER UNIT	TOTAL	
Maint. / Lamp Replace.							
Assume average life of T12 and T8 systems is 15000 hours							
15000 hrs ÷ 2500 Op. hrs / year ⇒ 6.0 year life							
T12 LAMP REPLACEMENT:							
F40 T12 Lamps	9221	Ea			1.69	x0.80	12467
F96 T12 Lamps	1690	Ea			4.27	x0.80	5773
FB40 T12 Lamps	26	Ea			7.41	x0.80	154
Subtotal							18394
Markup for Profit						10%	1839
Total Cost							\$20233
Cost per Year					\$20233 ÷ 6.0 =		\$3372
T8 LAMP REPLACEMENT:							
F32 T8 Lamps	6488	Ea			2.02		13106
F96 T8 Lamps	1104	Ea			6.40		7066
FB32 T8 Lamps	26	Ea			9.34		243
Subtotal							20415
Markup for Profit						10%	2042
Total Cost							22457
Cost per Year					\$22457 ÷ 6.0 =		\$3743
① Material cost for T12 lamps from Grainger x 0.8 for contractor price.							
② Assume labor cost is the same for T8 or T12 replacement.							



SUBJECT Lighting Upgrade
Pine Bluff Arsenal, AR
DESIGNER WTT
CHECKER _____

AEP NO 694-1331-001
SHEET _____ OF _____
DATE 3-24-95
DATE _____

Maintenance / Replacement Cost

Existing T12 Lamps :

	<u>F40 T12</u>	<u>F96 T12</u>
Lamps Removed	8776	8776
Assume 85% are 4'	<u>$\times 0.85$</u>	<u>$\times 0.15$</u>
Subtotal	7460	1316
Fixtures Removed	587	187
\times Lamps per fixture	<u>$\times 3$</u>	<u>$\times 2$</u>
Subtotal	1761	374
Total Exist. Lamps	9221	1690

New T8 Lamps :

	<u>F32 T8</u>	<u>F96 T8</u>
Lamps Installed	5398	1040
Fixtures Added	545	32
\times Lamps per fixture	<u>$\times 2$</u>	<u>$\times 2$</u>
	1090	64
Total T8 Lamps	6488	1104



SUBJECT PBA LIGHTING
SURVEY
DESIGNER C. WARREN
CHECKER _____

AEP NO 694-1331-001
SHEET _____ OF _____
DATE 3/24/95
DATE _____

ESTIMATED SAVINGS - A/C

$$\text{Cooling kWh/yr} = \textcircled{1} \left(\text{lighting } \frac{\text{kWh}}{\text{yr}} \right) \times \textcircled{2} (\% \text{ months cooling}) \times \textcircled{3} \left(\frac{3.413}{\text{SEER (Btu/h/W)}} \right) \times \textcircled{4} (\% \text{ light into cooled space})$$

ASSUMPTIONS

① Savings in kWh/yr = $(42,713 - 10,768) = 31,945$

② % cooling months = 50% (6/12)

③ SEER = 8

④ % into cooled space = 125%

$$\text{Savings kWh/yr} = (31,945)(.5) \left(\frac{3.413}{8} \right) (.25) = 39,180$$

$$\text{\$ SAVINGS} = (39,180) \frac{\text{kWh}}{\text{yr}} \times 0.0662/\text{kWh} = \$2594/\text{yr}$$

$$\text{SAY } \$ \underline{\underline{2600/\text{yr}}}$$

ECO 4

OCCUPANCY SENSORS



SUBJECT Occupancy Sensors
DESIGNER Antkum
CHECKER _____

AEP NO 8511
SHEET _____ OF _____
DATE 3/20/95
DATE _____

Summary

Occupancy Sensors

Based on screening calculations - to maintain paybacks less than 10 yrs. the following is a list of required wattage to be controlled by space type

Type	min. wattage	OPN HRS	% SAVINGS	kw	kwh saved	\$ saved
Restrooms	60	8760	90	18.8	148,200	\$ 7100
Breakroom	180	1820	86	14.1	22,100	\$ 1100
Offices	300	1820	18	-	-	-
Totals					170,300	\$ 8200

	Before	After
Energy use (kwh)	190,350	20050
Energy cost	\$ 9100	\$ 900

Simple Payback =

$$\frac{122 \times 91}{8200} = 1.35 \text{ yrs}$$

Electricity rate : 6.6¢/kwh avg (incl. demand)
3.0¢/kwh - energy only
use 4.8¢/kwh since demand will not always be reduced.

Gross prices

Ceiling Mtd. Sensor	56.11	Labor est. 1 hr @ 40 × 0.67 × 1.5 = 40/hr.
Power Pack	17.54	
Brackets	7.00	
	90.65	

(1) Means labor index for PriceBluff

(2) Mark ups

RS&H**Construction Cost Estimate**

SHEET OF

AE FILE NO.

DATE
3/20/95

PROJECT

Lighting Energy Study

Location

Pine Bluff Arsenal

ESTIMATOR

Hutchins

CHECKER

BASIS FOR ESTIMATE

☒ PRE-DESIGN STUDY☐ SCHEMATIC DESIGN☐ DESIGN DEVELOPMENT☐ FINAL DESIGN

SUMMARY	QUANTITY		LABOR		MATERIAL		TOTAL COST
	NO. UNITS	UNIT MEAS.	PER UNIT	TOTAL	PER UNIT	TOTAL	
Ceiling Mtd. Ultra-Sonic Occupancy Sensor	122	ea	31.35	3825	56.11	6845	
Power pack	122	ea	-	-	17.54	2140	
Mounting brackets	122	ea	-	-	7.00	854	
Subtotals				3825		9839	
Means City Labor Cost Index			X0.70	2678		9839	12,517
ANNUAL REPL COSTS							
5-YR LIFETIME - ASSUME REPLACE 1/5 = 24 /yr	24	EA					2,462
Source: Materials - U.S. Govt.							
Labor - Means 1.14 hrs/sensor @ \$27.50 /hr.							

SAVINGS CALC'S

		ROOM TYPE		#	W/	TOT	#	WATTS/	MEETS	WATTS	CTRLD
BLDG #		BR	RR	FIXT	FIXT	WATTS	CIRC	CIRC	CRIT.	BR	RR
10020	1			4	113	452	1	452	1	452	0
	1			2	60	120	1	120	0	120	0
	1			10	60	600	3	200	1	200	0
10030	1			2	59	118	1	118	0	118	0
				3	34	102	1	102	1	0	102
				1	1	60	1	60	1	0	60
				1	1	60	1	60	1	0	60
10050	1			4	425	1700	1	1700	1	1700	0
	1			5	61	305	1	305	1	305	0
	1			4	59	236	1	236	1	236	0
	1			6	59	354	1	354	1	354	0
	1			2	59	118	1	118	0	118	0
				1	2	83	166	2	83	1	0
	1			4	59	236	1	236	1	236	0
				1	1	59	59	1	59	1	0
13010				1	1	40	40	1	115	1	0
				1	75	75			0	0	0
	1			4	59	236	1	236	1	236	0
13020				1	1	75	75	1	75	1	0
				1	2	75	150	1	150	1	0
				1	1	75	75	1	75	1	0
13030				1	1	59	59	1	59	1	0
	1			1	1	59	59	1	59	0	59
	1			1	1	59	59	1	59	0	59
	1			3	110	330	1	330	1	330	0
	1			2	110	220	1	220	1	220	0
				1	1	75	75	1	75	1	0
13040	1			2	59	118	1	118	0	118	0
				1	1	59	59	1	59	1	0
				1	1	59	59	1	59	1	0
13060				1	1	60	60	1	60	1	0
13080				1	3	48	144	1	144	1	0
				1	3	48	144	1	144	1	0
13100				1	1	100	100	1	100	1	0
13110				1	1	60	60	1	60	1	0
TOTALS	16	18	83			6,883	37		28	4,861	1,547

		ROOM TYPE		#	W/	TOT	#	WATTS/	MEET	WATTS	CTRLD
BLDG #		BR	RR	FIXT	FIXT	WATTS	CIRC	CIRC	CRIT.	BR	RR
16210	1			2	59	118	1	118	0	118	0
				1	1	83	83	1	83	1	0
	1			2	34	68	1	124	0	124	0
				1	56	56			0	0	0
				1	34	34	1	93	1	0	34
				1	59	59			0	0	0
16220	1			2	59	118	1	118	0	118	0
				1	1	83	83	1	83	1	0
	1			2	34	68	1	124	0	124	0
				1	56	56	1		0	0	0
				1	34	34	1	93	1	0	34
				1	59	59	1		0	0	0
31010									0	0	0
31080				1	2	59	118	1	118	1	0
	1			2	61	122	1	122	0	122	0
32030									0	0	0
32035	1			6	59	354	2	177	1	177	0
				1	2	59	118	1	118	1	0
32060				1	6	105	630	2	315	1	0
				1	3	91	273	1	373	1	0
				1	100	100	1		0	0	0
32070	1			1	2	105	210	1	210	1	210
				1	1	105	105	1	105	1	0
				1	1	105	105	1	105	1	0
32090				1	1	59	59	1	59	1	0
				1	1	59	59	1	59	1	0
	1			8	59	472	2	236	1	236	0
				1	2	59	118	1	118	1	0
32100	1			3	59	177	1	177	1	177	0
				1	3	59	177	1	177	1	0
				1	3	59	177	1	177	1	0
32130				1	2	85	170	1	170	1	0
32150				1	1	59	59	1	59	1	0
				1	1	59	59	1	59	1	0
				1	1	59	59	1	59	1	0
				1	1	59	59	1	59	1	0
33060				1	6	105	630	2	315	1	
				1	3	91	273	1	373	1	
				1	100	100	1		0		
33530									0		
TOTALS	9	23	79			5,619	39		26	1,406	2,730

Notes: BR = breakroom or similar type
RR = restroom or similar type
Criteria = for BR controlled watts must be greater than 175 W
= for RR controlled watts must be greater than 58 W

BLDG #	ROOM TYPE		#	W/ FDXT	TOT KW	# CIRC	WATTS/ CIRC.	MEETS CRIT.	WATTS CTRLD	
	BR	RR							BR	RR
34110								0	0	0
34120	1		2	59	118	1	118	0	118	0
		1	1	34	34	1	152	1	0	34
			2	59	118			0	0	0
34140		1	1	105	105	1	105	1	0	105
		1	8	59	472	2	406	1	0	472
			4	85	340	1		0	0	0
		1	2	59	118	1	118	1	0	118
		1	4	105	420	1	420	1	0	420
		1	4	105	420	1	420	1	0	420
34910	1		15	59	885	1	885	1	885	0
	1		7	59	413	1	413	1	413	0
	1		4	59	236	2	118	0	118	0
	1		2	59	118	1	118	0	118	0
	1		12	59	708	2	354	1	354	0
	1		2	59	118	1	118	0	118	0
	1		2	59	118	1	118	0	118	0
	1		4	59	236	1	236	1	236	0
	1		1	59	59	1	59	0	59	0
	1		6	59	354	1	354	1	354	0
	1		2	59	118	1	118	0	118	0
34970		1	1	59	59	1	59	1	0	59
		1	1	34	34	1	34	0	0	34
	1		1	59	59	1	59	0	59	0
44100	1		2	59	118	1	118	0	118	0
		1	13	59	767	1	767	1	0	767
		1	6	59	354	2	177	1	0	354
		1	36	59	2124	4	531	1	0	2124
		1	8	59	472	2	236	1	0	472
		1	6	59	354	1	354	1	0	354
		1	5	59	295	1	295	1	0	295
		1	2	34	68	1	245	1	0	68
			3	59	177			0	0	0
		1	4	59	236	1	236	1	0	236
		1	3	59	177	1	177	1	0	177
51420	1		3	59	177	1	177	1	177	0
		1	4	59	236	1	236	1	0	236
		1	3	59	177	1	177	1	0	177
		1	2	59	118	1	118	1	0	118
		1	3	59	177	1	177	1	0	177
51430	1		2	59	118	1	118	0	118	0
		1	1	75	75	1	75	1	0	75
		1	2	23	46	1	46	0	0	46
TOTALS	16	23	196		11,926	48		27	3,481	7,338

BLDG #	ROOM TYPE		#	W/ FDXT	TOT KW	# CIRC	WATTS/ CIRC.	MEET CRIT.	WATTS CTRLD	
	BR	RR							BR	RR
53160	1		9	59	531	1	531	1	531	0
		1	2	34	68	1	68	1	0	68
			9	59	531	2	266	0	0	0
		1	1	34	34	1	34	0	0	34
			12	59	708	3	236	0	0	0
60020	1		1	2	59	118	1	118	0	118
		1	1	59	59	1	59	1	0	59
		1	1	59	59	1	59	1	0	59
		1	2	59	118	1	118	1	0	118
		1	5	59	295	1	295	1	0	295
60060	1		6	59	354	1	354	1	354	0
		1	1	34	34	1	93	1	0	34
			1	59	59			0	0	0
		1	2	59	118	1	118	1	0	118
60070		1	2	59	118	1	118	1	0	118
		1	2	59	118	1	118	1	0	118
		1	2	59	118	1	118	1	0	118
		1	1	59	59	1	59	1	0	59
60090	1		1	59	59	1	59	0	59	0
		1	3	34	102	1	102	1	0	102
		1	2	34	68	1	68	1	0	68
60630	1		2	59	118	1	118	0	118	0
		1	2	59	118	1	118	1	0	118
		1	1	23	23	1	23	0	0	23
			3	59	177	1	177	0	0	0
63100		1	2	59	118	1	118	1	0	118
		1	1	59	59	1	59	1	0	59
		1	4	59	236	1	236	1	0	236
	1		2	59	118	1	118	0	118	0
63110	1		2	59	118	1	118	0	118	0
	1		2	59	118	1	118	0	118	0
63120	1		2	12	24	1	260	1	260	0
			4	59	236			0	0	0
		1	1	59	59	1	59	1	0	59
	1		2	59	118	1	118	0	118	0
63200	1		9	59	531	1	531	1	531	531
		1	2	59	118	1	118	1	0	118
			2	59	118	1	118	0	0	0
63210	1		10	59	590	1	690	1	690	0
			1	100	100			0	0	0
								0	0	0
								0	0	0
TOTALS	12	23	123		6,943	41		25	3,133	2,748

Notes: BR = breakroom or similar type
RR = restroom or similar type
Criteria = for BR controlled watts must be greater than 175 W
= for RR controlled watts must be greater than 58 W

BLDG #	ROOM TYPE		#	W/	TOT	#	WATTS/	MEETS	WATTS CTRLD		
	BR	RR	FXT	FXT	KW	CIRC	CIRC.	CRIT.	BR	RR	
63410			1	13	59	767	2	384	1	0	767
			1	10	59	590	2	295	1	0	590
			1	8	59	472	2	236	1	0	472
			1	2	59	118	1	118	1	0	118
			1	1	22	22	1	199	1	0	22
			3	59	177				0	0	0
			1	6	59	354	1	354	1	0	354
			1	3	59	177	1	177	1	0	177
	1		7	59	413	1	413	1	413	0	0
	1		8	59	472	1	472	1	472	0	0
		1	1	59	59	1	236	1	0	59	0
			3	59	177				0	0	0
		1	3	59	177	1	177	1	0	177	0
		1	13	59	767	1	767	1	0	767	0
		1	1	22	22	1	553	1	0	22	0
			9	59	531				0	0	0
		1	3	59	177	1	177	1	0	177	0
		1	7	59	413	1	413	1	0	413	0
		1	6	59	354	1]			0	0	354
	1		4	59	236	1	236	1	236	0	0
	1		1	22	22	1	140	0	140	0	0
			2	59	118					0	0
TOTALS	4	14	114		6,615	21		16	1,261	4,469	
GRAND											
TOTALS	57	101	595		37,986	186		122	14,142	18,832	

Notes: BR = breakroom or similar type

RR = restroom or similar type

Criteria = for BR controlled watts must be greater than 175 W

= for RR controlled watts must be greater than 58 W

PINEBLUFF ARSENAL
SCREENING CALCULATIONS
OCCUPANCY SENSORS
FILENAME: OSENS.WQ1

RESTROOMS

#	2L FIXTS	KW	ENERGY USE (KWH)		ANNUAL SAVINGS		SIMPLE PAYBACK (YRS)
			CURR.	PROP'D	(KWH)	(\$)	
1		0.058	507	50	457	\$21.93	5.8
2		0.116	1,013	100	914	\$43.86	2.9
3		0.174	1,520	149	1,371	\$65.80	1.9
4		0.232	2,027	199	1,828	\$87.73	1.5
5		0.290	2,533	249	2,285	\$109.66	1.2
6		0.348	3,040	299	2,742	\$131.59	1.0

Assumptions:

Cost= \$128 (Watervliet Arsenal Report)
Operating hrs= 168 hrs/wk
Proposed op hrs = 16.5 hrs/wk
Percent savings = 90%

BREAKROOMS

#	2L FIXTS	KW	ENERGY USE (KWH)		ANNUAL SAVINGS		SIMPLE PAYBACK (YRS)
			CURR.	PROP'D	(KWH)	(\$)	
1		0.058	106	15	90	\$4.34	29.5
2		0.116	211	30	181	\$8.69	14.7
3		0.174	317	45	271	\$13.03	9.8
4		0.232	422	60	362	\$17.37	7.4
5		0.290	528	75	452	\$21.72	5.9
6		0.348	633	90	543	\$26.06	4.9

Assumptions:

Cost= \$128 (Watervliet Arsenal Report)
Operating hrs= 35 hrs/wk
Proposed op hrs = 5.0 hrs/wk
Percent savings = 86%

OFFICES

#	2L FIXTS	KW	ENERGY USE (KWH)		ANNUAL SAVINGS		SIMPLE PAYBACK (YRS)
			CURR.	PROP'D	(KWH)	(\$)	
1		0.058	151	124	27	\$1.30	43.7
2		0.116	302	247	54	\$2.61	21.9
3		0.174	452	371	81	\$3.91	14.6
4		0.232	603	495	109	\$5.21	10.9
5		0.290	754	618	136	\$6.51	8.7
6		0.348	905	742	163	\$7.82	7.3

Assumptions:

Cost= \$57 (wall switch replacement only)
Operating hrs= 50 hrs/wk
Proposed op hrs = 41.0 hrs/wk
Percent savings = 18%

PINEBLUFF ARSENAL
SCREENING CALCULATIONS
OCCUPANCY SENSORS

RESTROOMS

#	2L FIXTS	KW	ENERGY USE (KWH)		ANNUAL SAVINGS		SIMPLE PAYBACK (YRS)
			CURR.	PROP'D	(KWH)	(\$)	
1		0.058	151	50	101	\$4.85	26.4
2		0.116	302	100	202	\$9.70	13.2
3		0.174	452	149	303	\$14.55	8.8
4		0.232	603	199	404	\$19.40	6.6
5		0.290	754	249	505	\$24.25	5.3
6		0.348	905	299	606	\$29.10	4.4

Assumptions:

Cost= \$128 (Watervliet Arsenal Report)
Operating hrs= 50 hrs/wk
Proposed op hrs = 16.5 hrs/wk
Percent savings = 67%

BREAKROOMS

#	2L FIXTS	KW	ENERGY USE (KWH)		ANNUAL SAVINGS		SIMPLE PAYBACK (YRS)
			CURR.	PROP'D	(KWH)	(\$)	
1		0.058	106	15	90	\$4.34	29.5
2		0.116	211	30	181	\$8.69	14.7
3		0.174	317	45	271	\$13.03	9.8
4		0.232	422	60	362	\$17.37	7.4
5		0.290	528	75	452	\$21.72	5.9
6		0.348	633	90	543	\$26.06	4.9

Assumptions:

Cost= \$128 (Watervliet Arsenal Report)
Operating hrs= 35 hrs/wk
Proposed op hrs = 5.0 hrs/wk
Percent savings = 86%

OFFICES

#	2L FIXTS	KW	ENERGY USE (KWH)		ANNUAL SAVINGS		SIMPLE PAYBACK (YRS)
			CURR.	PROP'D	(KWH)	(\$)	
1		0.058	151	124	27	\$1.30	43.7
2		0.116	302	247	54	\$2.61	21.9
3		0.174	452	371	81	\$3.91	14.6
4		0.232	603	495	109	\$5.21	10.9
5		0.290	754	618	136	\$6.51	8.7
6		0.348	905	742	163	\$7.82	7.3

Assumptions:

Cost= \$57 (wall switch replacement only)
Operating hrs= 50 hrs/wk
Proposed op hrs = 41.0 hrs/wk
Percent savings = 18%



SUBJECT _____
DESIGNER _____
CHECKER _____

AEP NO _____
SHEET _____ OF _____
DATE _____
DATE _____

OCCUPANCY SENSORS - DETAILED INVENTORY

<u>BLDG #</u>	<u>ROOM TYPE</u>	<u># FIXT</u>	<u>W</u> <u>FIXT</u>	<u>TOTAL</u> <u>KW</u>	<u>#</u> <u>CIRCS</u>
10020	BREAK ROOM	4	113		1
	VENDING	2	60		1
	BREAK ROOM (230)	10	60		3
10030	BREAK ROOM	2	59		1
	REST ROOM	3	34		1
	MEN'S ROOM	1	60		1
	LADIES' ROOM	1	60		1
10050	DINING ROOM	4	425		1
	KITCHEN	5	61		1
	LOUNGE	4	59		1
	EXERCISE RM	6	59		1
	LAUNDRY	2	59		1
	REST RM / SHOWER	2	83		2
	TV ROOM	4	59		1
	LADIES REST.	1	59		1
13010	RESTROOM	2	40/75		1
	TRAINING RM	4	59		1
13020	LADIES' RM	1	75		1
	MEN'S RM	2	75		1
	REST RM	1	75		1
13030	REST RM	1	59		1
	LAUNDRY	1	59		1
	DRESSING RM	1	59		1
	CLASSROOM	3	110		1
	KITCHEN	2	110		1
	RESTROOM	1	75		1
13040	BREAK RM (9)	2	59		1
	MEN'S RM	1	59		1
	LADIES' RM	1	59		1

RS&HSUBJECT _____
DESIGNER _____
CHECKER _____AEP NO _____
SHEET _____ OF _____
DATE _____
DATE _____

<u>BLDG#</u>	<u>ROOM TYPE</u>	<u>#</u> <u>FLRT</u>	<u>W</u> <u>FLRT</u>	<u>TOTAL</u> <u>KW</u>	<u>#</u> <u>CIRC.'s</u>
13060	REST RM	1	60		1
13080	WOMEN'S RM	3	48		1
	MEN'S RM	3	48		1
13100	REST RM	1	100		1
13110	REST RM	1	60		1
16210	KITCHEN	2	59		1
	REST. RM	1	83		1
	LAUNDRY	2/1	34/56		1
	REST RM	1/1	34/59		1
16220	KITCHEN	2	59		1
	REST. RM	1	83		1
	LAUNDRY	2/1	34/56		1
	REST. RM	1/1	34/59		1
31010	NONE	-	-		-
31080	REST RM	2	59		1
	BREAK RM	2	61		1
32030	NONE	-	-		-
32035	BREAK RM	6	59		2
	REST RM	2	59		1
32060	COMP. RM	6	105		CB's
	BOILER RM	3/1	91/100		-
32070	BREAK RM	2	105		1
	MEN'S RM	1	105		1
	LADIES' RM	1	105		1

RS&HSUBJECT _____
DESIGNER _____
CHECKER _____AEP NO _____
SHEET _____ OF _____
DATE _____
DATE _____

<u>BLDG #</u>	<u>ROOM TYPE</u>	<u>#</u> <u>FIXT</u>	<u>W</u> <u>FIXT</u>	<u>TOTAL</u> <u>KW</u>	<u>#</u> <u>CIRC. 's</u>
32090	REST RM	1	59		1
	REST RM	1	59		1
	BREAK RM	8	59		2
	MEN'S RM	2	59		1
32100	BREAK RM	3	59		1
	MEN'S RM	3	59		1
	LADIES' RM	3	59		1
32130	REST RM	2	85		1
32150	REST RM	1	59		1
	REST RM	1	59		1
	REST RM	1	59		1
	REST RM	1	59		1
33060	COMP RM	6	105		CB?
	BOILER RM	3/1	91/100		CB?
33530	NONE	-	-		-
34110	NONE	-	-		-
34120	BREAK RM	2	59		1
	REST RM	1/2	34/59		1
34140	WATER CTRM	1	105		1
	BOILER RM	8/4	59/85		2
	REST RM	2	59		1
	COMP RM 1	4	105		1
	COMP RM 2	4	105		1
34910	CHANGE RM 2	15	59		1
	CHANGE RM 1	7	59		1

RS&H
 SUBJECT _____

 DESIGNER _____
 CHECKER _____

 AEP NO _____
 SHEET _____ OF _____
 DATE _____
 DATE _____

BLDG #	ROOM TYPE	# FIXT	W FIXT	TOTAL KW	# CIRC.'s
34910 (cont.)	WO BREAK RM	4	59		2
	WO COPY RM	2	59		1
	T&D Lunch RM	12	59		2 ?
	BGM BREAK RM	2	59		1
	BGM KITCHEN	2	59		1
	UTIL. BREAK	4	59		1
	UTIL. KITCHEN	1	59		1
	ELEC. SHP BREAK	6	60		1 ?
	WASH AREA	2	59		1
34970	WOM.' LOUNGE	1	59		1
	MEN.'S REST.	1	34		1
	KITCHEN	1	59		1
44100	COFFEE RM	2	59		1
	NEW LOCKER RM	13	59		1
	SHOWER AREA	6	59		2
	OLD LOCKER RM	36	59		4 ?
	LOCKER REST RM	8	59		2
	WOMEN'S LOCKER	6	59		1
	WOM.'S SHWR #1	5	59		1
	WOM.'S SHWR #2	2/3	34/59		1
	WOM.'S BATH RM L.	4	59		1
	LOUNGE REST.	3	59		1
51420	BREAK RM (34)	3	59		1
	MEN'S CHANGE RM (32)	4	59		1
	WOM.'S CHANGE RM (30)	3	59		1
	MEN'S RM.	2	59		1
	WOM.'S RM	3	59		1
	COPIER RM	2	59		1

RS&HSUBJECT _____
DESIGNER _____
CHECKER _____AEP NO _____
SHEET _____ OF _____
DATE _____
DATE _____

<u>BLDG #</u>	<u>ROOM TYPE</u>	<u>#</u> <u>FIXT</u>	<u>W</u> <u>/</u> <u>FXT</u>	<u>TOTAL</u> <u>WATTS</u>	<u>#</u> <u>Circ.'s</u>
51430	RESTROOM	1	75		1
	OFFICE 3 Rest.	2	23		1
53160	BREAK RM	9	59		
	WOM.'S CHANGE	2/9	34/59		3
	MEN'S CHANGE	1/12	34/59		4
	COM. REST.	2	59		1
60020	BREAK RM	2	59		1
	MEN'S RM	1	59		1
	WOM.'S RM	1	59		1
	LOCKER RM 1	2	59		1
	LOCKER RM 2	5	59		1
60060	BREAK RM	6	59		1
	MEN'S RM	1/1	34/59		1
	WOM.'S RM	3	59		1
60070	SHOWER AREA	2	59		1
	MEN'S LOCKER	2	59		1
	WOM.'S SHWR.	2	59		1
	MEN'S REST.	1	59		1
60090	KITCHEN	1	59		1
	WOM.'S RM	3	34		1
	MEN'S RM	2	34		1
60630	BREAK RM	2	59		1
	WOM.'S REST.	2	59		1
	MEN'S REST.	1/3	23/59		2

RS&HSUBJECT _____
DESIGNER _____
CHECKER _____AEP NO _____
SHEET _____ OF _____
DATE _____
DATE _____

<u>BLDG #</u>	<u>ROOM TYPE</u>	<u>#</u> <u>FIXT</u>	<u>W</u> / <u>FIXT</u>	<u>TOTAL</u> <u>WATTS</u>	<u>#</u> <u>CIRC.s</u>
63100	WOM.'S REST.	2	59		1 ?
	MEN'S REST.	1	59		1
	CHANGE RM	4	59		1
	BREAK RM	2	59		1
63110	SMOKE BRK.	2	59		1
	BREAK RM	2	59		1
63120	CHANGE AREA	2/4	23/59		1
	REST RM. 1	1	59		1
	BREAK RM	2	59		1
63200	BREAK RM	2	59		1
	MEN'S RM	2	59		1
	WOM.'S RM	2	59		1
63210	BREAK RM	10/1	59/100		1
63410	LOCKER RM 1	13	59		2 ?
	SHOWERS 1	10	59		2 ?
	LOCKER RM 2	8	59		2
	REST RM 1	2	59		1
	LOCKER RM 2	1/3	22/59		1
	SHOWERS 2	6	59		1
	REST RM 2	3	59		1
	KITCHEN	7	59		1
	BREAK RM	8	59		1
	MEN'S RM	1/3	59		1
	WOM.'S RM	3	59		1
	MEN'S CHANGE	13	59		1
	MEN'S SHWRS	1/9	22/59		1
	REST RM 5	3	59		1

RS&H

SUBJECT _____
DESIGNER _____
CHECKER _____

AEP NO _____
SHEET _____ OF _____
DATE _____
DATE _____

<u>BLDG #</u>	<u>ROOM TYPE</u>	<u>#</u> <u>FIXT</u>	<u>W2</u> <u>FIXT</u>	<u>TOTAL</u> <u>WFTS</u>	<u>#</u> <u>CIRC.'S</u>
63410	WOM'S LOCKER	7	59		1
	WOM.'S SHWRS	6	59		1
	WOM.'S REST.	4	59		1
	ICE MACH RM	1/2	22/59		1

Screening Calc's. - Occupancy Sensor with & w/o Compact Fluorescents Restrooms

Assume lights are left on 168 hrs/wk

Estimate payback - assume 90% savings

Room size	=	—
Lighting load	=	75 watt incand.
Annual hrs.	=	8760 hrs
Annual Use (before)	=	1657 kwh
" (after)	=	66 kwh
" (savings)	=	591 kwh

$$\text{Simple payback} = \frac{\$128}{591 \times 0.048} = \underline{\underline{4.5 \text{ yrs}}}$$

$$\text{With compacts} = \frac{128}{591 \times 0.048 \left(\frac{19.1}{75} \right)} = \underline{\underline{17.7 \text{ yrs}}}$$

Savings - Assume $\frac{2}{3}$ savings

Energy rate - 6.6¢/kwh avg. (incl demand)
 3.0¢/kwh energy only
 use 4.8¢/kwh since this ECO may or may
 not reduce demand

Screening Calc's - Compact Fluorescents

Assume lights operate 50 hrs/wk

Estimate payback

$$\begin{aligned} \text{Annual energy use} &= \frac{75 \text{ watt} \times 50 \times 52}{1000} = \underline{195 \text{ kwh}} \\ \text{(Incand.)} & \qquad \qquad \qquad \text{or } \underline{0.67 \text{ MBtu}} \end{aligned}$$

$$\begin{aligned} \text{Proposed energy use} &= \frac{19.1 \times 50 \times 52}{1000} = \underline{50 \text{ kwh}} \\ \text{(Compact)} & \qquad \qquad \qquad \text{or } \underline{0.17 \text{ MBtu}} \end{aligned}$$

$$\text{Savings} = 195 - 50 = \underline{145 \text{ kwh}} \text{ or } \underline{0.49 \text{ MBtu}}$$

$$\text{Cost Savings} = 145 \times 0.066 = \underline{\$ 9.6 / \text{yr.}}$$

$$\text{Simple payback} = \frac{\$ 24}{\$ 9.6} = \underline{2.5 \text{ yr. payback}}$$

Labor - Grainger 1994, p. 776 Phillips SLS 20

ECO 5

INSTALL PHOTOCELLS

Photocell Screening Calc's

Sample room - 4 TB w/ elec. ballast fixtures
4 fixt @ 58 watts each after lighting ECO

Many windows on SOUTH - facing wall

Current energy use:

$$\begin{array}{cccc} \text{watts} & \text{hrs/yr} & \text{kwh/yr} & \sim \text{cost} \\ 116 & 2500 & 290 & \$19.14/\text{yr.} \end{array}$$

energy use with photocell controls & dimming ballast

Assume 40% savings

$$\begin{array}{cccc} \text{watts} & \text{hrs/yr} & \text{kwh/yr} & \$ \text{cost} \\ 70 & 2500 & 175 & 11.55 \end{array}$$

$$\text{Savings} = 115 \text{ kwh/yr}, \$7.59/\text{yr.}$$

$$\text{Cost} = 39 \times 1.5 + 202 = \$260$$

$$\text{Simple payback} = \frac{260}{7.59} = \underline{\underline{34}} \text{ years}$$

Aug. Elec Cost 6.6¢/kwh



AE FILE NO.

DATE 3/24/95

ESTIMATOR *Hutchins*

CHECKER

BASIS FOR ESTIMATE
☒ PRE-DESIGN STUDY

□ SCHEMATIC DESIGN

□ DESIGN DEVELOPMENT

☐ FINAL DESIGN

[illegible]

RS&HSUBJECT _____
DESIGNER _____
CHECKER _____AEP NO _____
SHEET _____ OF _____
DATE _____
DATE _____Costs

		<u>STND</u> <u>ELEC.</u>	<u>DIMMING</u> <u>ELEC</u>	<u>Ratio</u>
from <u>Means</u>	mat.	34	52	1.53
	Lab.	27.50	29	1.05

From Thomas Industries

Controller - up to 50 lamps	\$ 125	dist cost
Photocell -	\$ 60	
Linear Slide - Dimmer -	\$ 60	



Telephone Call Confirmation

Project Number _____

(601) 842-7212

Local _____ L.D. ☒ Placed ☒ Rec'd _____ Date 3/24/95

Conversed with Eric Syroski or Thomas Industries

Regarding Photocell sensors & dimming ballast controllers

Distributor costs:

Controller (up to 50 lamps)	\$ 125
-----------------------------	--------

Photocell	\$ 60
-----------	-------

Linear Slide Dimmer	\$ 60
---------------------	-------

Estimated savings 30-40 %

Distribution:

ECO 8

LED EXIT SIGNS



SUBJECT _____
DESIGNER Hutchins
CHECKER _____

AEP NO _____
SHEET _____ OF _____
DATE 3/8/95
DATE _____

ECM Exit Sign Lamp Replacement

Final Energy Savings Calc.

Present energy use -
(assume 2-15 watt incandescents per sign)

$$55 \text{ signs} \times 2 \times \frac{15 \text{ watt} \times 8760 \text{ hr/yr}}{1000} = \underline{14,454 \text{ kwh}} \text{ or } \underline{49.3 \text{ MBtu}}$$

Proposed system energy use
(1.8 watts/sign LEDs)

$$55 \times \frac{1.8 \text{ w} \times 8760}{1000} = \underline{867 \text{ kwh}} \text{ or } \underline{3.0 \text{ MBtu}}$$

$$\begin{aligned} \text{Savings: } 14,454 - 867 &= \underline{13,587 \text{ kwh}} \\ &\text{or} \\ 49.3 - 3.0 &= \underline{46.3 \text{ MBtu}} \end{aligned}$$

$$\text{Cost Savings} = 13,587 \times 0.066 \approx \underline{\underline{\$900/\text{yr.}}}$$

Construction Cost Estimate

SHEET OF

AE FILE NO.

PROJECT

EXIT SIGNS

DATE _____

TE 3/3/95

Location

PINEBLUFF ARSSNAZ

ESTIMATOR

INMATOR
Hutchins

CHECKER

Basis for Estimate

PRE-DESIGN STUDY

SCHEMATIC DESIGN

□ DESIGN DEVELOPMENT

☐ FINAL DESIGN[illegible]

RS&HSUBJECT _____
DESIGNER Hutchins
CHECKER _____AEP NO _____
SHEET _____
DATE 3/3/95
DATE _____

Exit Sign Inventory

Bldg #	Description	REQD #	REPO #	Comments
10-020	Admin -	12	12	
10-030	Admin. (Gen Pur p.)	4	-	radioactive type
10-050	Fire HQ	8	2	few noted
13010	Com. Serv.	2	2	
13020	Health Clinic	3	3	
13030	52ND EOD	3	3	
13040	Counseling	3	3	
13060	Clinic	3	3	
13080	Laboratory	1	1	
13100	Infirmery	2	2	
13110	Audio-Vis. Fac.	1	1	
16210	Barracks	2	2	
16220	Barracks	2	2	
31010	Electronic Cal.	1	1	
31080	"	2	2	
32030	Inspection Garage	3	-	none noted
32035	Ord. Shop (Motor Pool)	4	-	none noted
32060	Boiler House	2	-	none noted
32070	Impreg. & Laundry	4	-	none noted
32090	Warehouse	10	-	none noted
32100	Elec/Comm Lab	6	-	radio active type
32130	Audio Visual Casser.	5	5	
32150	"	3	-	none noted
33060	Boiler House	2	-	none noted
33530	Fill & Press (Pack out only)	10	-	none noted



SUBJECT _____
DESIGNER _____
CHECKER _____

AEP NO _____
SHEET _____ OF _____
DATE _____
DATE _____

Exit Sign Inventory (cont'd)

Plg #	Description	REQ'D #	REP'D #	Comments
34110	WP Filling	8	-	none noted
34120	Ammo Qual. (S.)	3	-	none noted
34140	Boiler House	4	-	none noted
34910	Admin.	26	2	few noted
34970	Admin.	4	-	none noted
44100	Prod. Field Off.	4	4	
51420	Offices / DMMS	6	4	
51430	Engr. Admin.	4	-	None noted
53160	Chem. Admin	6	6	
60020	Security	4	3	
60060	Admin.	4	4	
60070	Fixed Laurel.	7	2	few noted
60090	TC Admin.	4	4	
60630	Warehouse	4	-	none noted
63100	Chem. Field Maint.	5	-	none noted
63110	Chem. Maint.	5	2	few noted
63120	"	4	-	none noted
63200	"	4	3	
63210	Mask Repair	4	4	
63410	Toxic/Cont. Chng/Isa	17	17	
TOTAL		225	55	
Radioactive		10		
Candidates		215		
Retrofits		55		
New Signs		160		



SUBJECT _____
DESIGNER _____
CHECKER _____

AEP NO _____
SHEET _____ OF _____
DATE _____
DATE _____

EXIT SIGNS - Screening Calc.s

Estimate energy use:

- Typical exit sign has 2 - 15 watt incandescent lamps
- Energy use = $\frac{2 \times 15 \times 8760}{1000} = 263 \text{ kwh/yr.}$
- Energy cost = $263 \text{ kwh/yr} \times 0.0622 \text{ \$/kwh (avg.)}$
 $= \underline{\underline{\$16.30}} / \text{yr. per sign}$

Calc. simple payback on various types

L.E.D Retrofit kit - 25 yr warranty

- Cost = $\$138.00 + 3.33^* = 41.33$
- Energy use = $\frac{1.8 \text{ watts/face} \times 1 \text{ face} \times 8760}{1000} = 15.7 \text{ kwh/yr.}$
- Energy cost = $15.7 \times 0.0622 = \$0.98 / \text{yr.}$
- Savings = $263 - 15.7 = \underline{247} \text{ kwh/yr}$ $16.3 - 0.98 = \underline{\underline{\$15.30}} / \text{yr}$
- Simple Payback = $41.33 / 15.3 = \underline{\underline{2.7}} \text{ yrs.}$

* 5 min installation at $\$40.00/\text{hr.}$

New L.E.D. sign

Indirect View 1-sided - \$65 + labor = 65 + 20 = \$85

$$\text{Simple payback} = 85 / 15.3 = \underline{5.6 \text{ yrs}}$$

Direct View 1-sided - 80 + 20 = \$100

$$\text{Simple payback} = 100 / 15.3 = \underline{6.5 \text{ yrs}}$$

Compact Fluorescents

Two 5 watt lamps and ballast

$$\text{Cost} = 18.50 + 20 = \$38.50$$

$$\text{Energy use} = \frac{5 \times 2 \times 1.1 \times 8760}{1000} = \underline{96.4 \text{ kwh/yr}}$$

$$\text{Energy Savings} = 263 - 96.4 = \underline{167 \text{ kwh/yr}}$$

$$\text{Cost Savings} = 167 \times 0.0622 = \$\underline{10.40/\text{yr}}$$

$$\text{Simple payback} = 38.50 / 10.40 = \underline{3.7 \text{ yr.}}$$



SUBJECT _____
DESIGNER _____
CHECKER _____

AEP NO _____
SHEET _____ OF _____
DATE _____
DATE _____

Exit Sign Retrofit Options Summary

<u>Type</u>	<u>Payback (yrs)</u>		<u>Project Cost ⁽¹⁾</u>
	<u>Retros</u>	<u>Total</u>	
L.E.D Retrofit	2.7	3.9	\$13,000
Compact Fluor.	3.7	-	-
New LED Sign (Ind.)	5.6	5.6	\$18,700
New LED Sign (Dir.)	6.5	6.5	\$22,000

⁽¹⁾ Without markups

CITY COST INDEXES

DIVISION		ALABAMA												ALASKA			ARIZONA		
		BIRMINGHAM			HUNTSVILLE			MOBILE			MONTGOMERY			ANCHORAGE			PHOENIX		
		MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL
	SITE WORK	87.6	92.9	91.7	87.6	93.2	91.9	97.7	87.4	89.8	98.4	86.9	89.6	122.8	142.3	137.8	72.1	99.8	93.4
	CONCRETE FORMWORK	101.4	68.4	73.4	100.5	65.8	71.1	100.5	70.2	74.8	97.7	62.6	67.9	123.0	127.7	127.0	99.6	84.2	86.6
	CONCRETE REINFORCEMENT	87.9	72.9	79.4	87.9	68.7	77.1	90.8	67.4	77.6	90.8	72.2	80.3	145.9	159.7	153.7	97.4	78.6	86.8
033	CAST IN PLACE CONCRETE	79.4	65.6	73.4	79.4	66.5	73.8	77.4	69.1	73.8	77.4	61.4	70.5	181.4	121.5	155.6	92.5	86.2	89.8
3	CONCRETE	80.1	70.0	75.0	80.0	68.5	74.2	79.4	71.0	75.2	79.2	65.9	72.5	157.4	130.6	143.9	99.6	83.4	91.5
4	MASONRY	75.4	66.1	69.6	75.4	60.6	66.3	75.4	67.0	70.2	75.4	46.4	57.5	164.9	131.6	144.3	79.9	82.5	81.5
5	METALS	96.9	95.0	96.2	96.8	94.3	95.8	95.7	93.7	94.9	95.9	93.5	95.0	131.3	122.7	128.0	96.7	77.7	89.4
6	WOOD & PLASTICS	98.4	69.5	83.8	97.3	65.8	81.4	97.3	71.8	84.4	93.7	65.8	79.6	117.7	125.8	121.8	102.8	83.7	93.1
7	THERMAL & MOISTURE PROTECTION	95.1	63.9	80.6	95.1	62.4	79.9	95.1	65.1	81.2	95.0	57.3	77.5	201.0	121.3	163.9	112.8	85.7	100.2
8	DOORS & WINDOWS	96.0	68.9	89.5	96.0	63.7	88.3	96.0	68.6	89.5	96.0	65.9	88.8	128.7	131.4	129.4	103.3	83.5	98.6
092	LATH, PLASTER & GYPSUM BOARD	103.1	69.1	79.7	103.1	65.3	77.1	103.1	71.5	81.4	103.1	65.3	77.1	142.6	126.6	131.6	94.2	83.1	86.6
095	ACOUSTICAL TREATMENT & WOOD FLOORING	99.2	69.1	79.7	99.2	65.3	77.3	99.2	71.5	81.3	99.2	65.3	77.3	157.8	126.6	137.6	94.8	83.1	87.2
096	FLOORING & CARPET	96.7	69.1	90.2	96.7	59.7	88.0	104.8	74.9	97.8	104.8	38.7	89.3	141.3	134.7	139.8	85.8	85.5	85.7
099	PAINTING & WALL COVERINGS	86.2	64.3	73.7	86.2	63.0	72.9	86.2	73.0	78.6	86.2	71.7	77.9	130.1	127.9	128.8	97.8	75.6	85.1
9	FINISHES	97.3	68.3	82.5	97.3	64.2	80.5	101.2	71.7	86.1	101.2	59.0	79.7	157.9	128.9	143.1	85.7	83.6	84.6
10-14	TOTAL DIV. 10-14	100.0	77.1	95.0	100.0	76.9	95.0	100.0	76.8	94.9	100.0	73.8	94.3	100.0	123.3	105.1	100.0	88.0	97.4
15	MECHANICAL	90.6	64.1	79.3	90.6	64.9	79.6	97.6	66.3	84.3	97.6	58.5	80.9	111.0	120.4	115.0	99.9	83.3	92.8
16	ELECTRICAL	95.7	64.7	75.3	95.7	72.4	80.4	95.8	68.0	77.5	95.8	55.0	69.0	155.7	133.7	141.3	110.3	71.8	85.0
1-16	WEIGHTED AVERAGE	92.0	72.1	82.5	92.0	72.0	82.4	94.1	73.0	84.0	94.1	64.8	80.0	135.2	129.1	132.2	97.7	82.8	90.5

DIVISION		ARIZONA			ARKANSAS			CALIFORNIA											
		TUCSON			FORT SMITH			LITTLE ROCK			ANAHEIM			BAKERSFIELD			FRESNO		
		MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL
2	SITE WORK	72.5	99.8	93.5	76.7	83.6	82.0	76.7	83.6	82.0	85.8	113.3	106.9	92.9	112.5	107.9	92.9	112.5	108.0
031	CONCRETE FORMWORK	100.6	84.0	86.5	96.6	56.8	62.9	93.7	62.6	67.3	98.7	129.1	124.5	90.2	128.0	122.3	98.5	125.1	121.0
032	CONCRETE REINFORCEMENT	96.4	78.6	86.3	97.9	65.0	79.3	97.9	62.5	77.9	110.9	113.8	112.5	110.4	113.1	111.9	110.9	113.3	112.2
033	CAST IN PLACE CONCRETE	94.4	86.1	90.8	83.1	59.0	72.8	83.1	59.1	72.8	98.6	126.7	110.7	93.9	125.1	107.3	93.9	120.8	105.4
3	CONCRETE	100.4	83.3	91.8	81.7	60.2	70.9	81.5	62.2	71.8	122.5	124.2	123.3	119.6	123.0	121.3	120.3	120.3	120.3
4	MASONRY	80.0	82.5	81.6	93.1	62.0	73.9	92.5	62.0	73.7	90.2	136.2	118.6	114.8	125.2	121.3	116.0	124.7	121.4
5	METALS	97.2	77.6	89.7	99.9	76.8	91.1	99.9	76.1	90.8	113.6	104.3	110.0	106.1	102.1	104.6	108.7	103.4	106.7
6	WOOD & PLASTICS	103.8	83.7	93.6	94.5	57.2	75.6	90.6	64.8	77.5	95.5	126.9	111.4	84.4	127.1	106.0	97.0	123.3	110.3
7	THERMAL & MOISTURE PROTECTION	114.0	82.7	99.4	90.0	60.3	76.2	88.8	61.1	75.9	123.8	128.2	125.9	106.0	114.1	109.8	105.5	117.3	111.0
8	DOORS & WINDOWS	102.0	83.5	97.6	97.6	57.8	88.1	97.6	61.7	89.0	107.2	122.0	110.8	105.9	118.3	108.8	105.8	117.0	108.5
092	LATH, PLASTER & GYPSUM BOARD	94.6	83.1	86.7	92.7	56.9	68.1	92.7	64.7	73.4	100.2	127.9	119.2	100.2	127.9	119.2	99.5	124.0	116.3
095	ACOUSTICAL TREATMENT & WOOD FLOORING	96.4	83.1	87.8	97.4	56.9	71.2	97.4	64.7	76.2	146.8	127.9	134.6	146.8	127.9	134.6	146.8	124.0	132.1
096	FLOORING & CARPET	85.0	75.5	82.8	122.6	68.5	109.9	122.6	68.5	109.9	139.5	129.9	136.4	134.3	87.0	123.2	134.3	101.3	126.5
099	PAINTING & WALL COVERINGS	95.6	74.4	83.4	100.4	44.7	68.4	100.4	61.7	78.2	124.3	126.1	125.3	126.8	123.7	125.0	126.8	105.5	114.6
9	FINISHES	85.6	81.4	83.5	104.6	57.6	80.7	104.5	63.9	83.8	129.7	128.9	129.3	131.8	120.9	126.3	131.7	118.0	124.7
10-14	TOTAL DIV. 10-14	100.0	88.0	97.4	100.0	68.5	93.1	100.0	69.5	93.3	100.0	124.0	105.2	100.0	124.3	105.3	100.0	142.9	109.4
15	MECHANICAL	99.8	80.5	91.6	100.0	52.9	79.9	100.2	60.3	83.2	100.2	126.9	111.6	100.2	108.0	103.5	100.2	122.8	109.9
16	ELECTRICAL	110.9	76.9	88.6	96.5	67.4	77.4	96.5	69.9	79.0	89.6	117.1	107.6	86.7	110.0	102.0	88.7	106.2	100.2
1-16	WEIGHTED AVERAGE	97.8	82.7	90.5	96.3	63.9	80.8	96.2	67.0	82.2	107.5	122.3	114.6	106.9	114.6	110.6	107.7	116.6	111.9

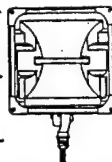
DIVISION		CALIFORNIA																	
		LOS ANGELES			OXNARD			RIVERSIDE			SACRAMENTO			SAN DIEGO			SAN FRANCISCO		
		MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL
2	SITE WORK	84.6	113.7	106.9	93.7	110.0	106.3	85.7	113.3	106.9	91.8	111.8	107.2	85.7	108.7	103.4	130.2	105.5	111.2
031	CONCRETE FORMWORK	101.0	128.9	124.6	96.2	129.2	124.2	99.9	129.0	124.6	97.4	125.2	121.0	99.9	122.3	118.9	98.6	143.3	136.6
032	CONCRETE REINFORCEMENT	113.5	113.8	113.7	110.4	113.3	112.0	109.4	113.4	111.7	110.9	113.4	112.3	109.9	113.0	111.6	124.9	114.8	119.2
033	CAST IN PLACE CONCRETE	94.7	123.2	107.0	100.8	125.7	111.5	98.6	126.7	110.7	102.1	120.9	110.2	98.5	118.1	107.0	117.9	125.7	121.2
3	CONCRETE	121.2	122.7	122.0	123.3	123.7	123.5	122.4	124.0	123.2	124.0	120.4	122.2	122.4	118.1	120.3	133.4	130.5	131.9
4	MASONRY	115.4	136.0	128.1	120.6	124.9	123.3	90.7	127.4	113.4	122.0	124.7	123.7	91.3	121.7	110.1	160.9	146.7	152.1
5	METALS	103.9	101.9	103.1	106.1	103.2	105.0	113.6	103.6	109.8	108.7	104.0	106.9	113.6	102.7	109.4	119.7	112.7	117.0
6	WOOD & PLASTICS	91.1	126.5	109.0	93.5	127.1	110.5	95.5	126.9	111.4	97.0	123.0	110.2	95.5	118.6	107.2	100.8	143.1	122.2
7	THERMAL & MOISTURE PROTECTION	110.9	128.1	118.9	111.4	124.4	117.5	123.3	125.4	124.3	111.7	123.2	117.0	123.3	117.2	120.5	108.0	143.3	124.4
8	DOORS & WINDOWS	104.7	121.8	108.8	104.4	122.1	108.6	107.2	122.0	110.8	105.4	117.4	108.3	107.3	117.4	109.7	99.2	132.7	107.3
092	LATH, PLASTER & GYPSUM BOARD	100.7	127.9	119.4	100.2	127.9	119.2	100.2	127.9	119.2	99.5	123.7	116.1	100.7	119.2	113.4	104.8	144.2	131.9
095	ACOUSTICAL TREATMENT & WOOD FLOORING	148.4	127.9	135.1	146.8	127.9	134.6	146.8	127.9	134.6	146.8	123.7	131.8	148.4	119.2	129.5	148.4	144.2	145.7
096	FLOORING & CARPET	128.1	129.9	128.5	134.3	129.9													

165 | Power Systems and Capacitors

165 200 Capacitors				CREW	DAILY OUTPUT	MAN- HOURS	UNIT	1994 BARE COSTS				TOTAL INCL O&P
								MAT.	LABOR	EQUIP.	TOTAL	
210	2400	35 KVAR		1 Elec	1.40	5.714	Ea.	780	157		937	1,100
	2450	50 KVAR		↓	1.30	6.154	↓	960	169		1,129	1,300

166 | Lighting

166 100 Lighting				CREW	DAILY OUTPUT	MAN- HOURS	UNIT	1994 BARE COSTS				TOTAL	
								MAT.	LABOR	EQUIP.	TOTAL	INCL O&P	
110	0010	EXIT AND EMERGENCY LIGHTING											
	0080	Exit light ceiling or wall mount, incandescent, single face			1 Elec	8	1	Ea.	50	27.50		77.50	96.50
	0100	Double face				6.70	1.194		56	33		89	111
	0120	Explosion proof				3.80	2.105		345	58		403	465
	0150	Fluorescent, single face				8	1		135	27.50		162.50	191
	0160	Double face			↓	6.70	1.194	↓	150	33		183	215
	0300	Emergency light units, battery operated											
	0350	Twin sealed beam light, 25 watt, 6 volt each											
	0500	Lead battery operated			1 Elec	4	2	Ea.	250	55		305	360
	0700	Nickel cadmium battery operated			↓	4	2	↓	460	55		515	590
	0780	Additional remote mount, sealed beam, 25W 6V				26.70	.300		20	8.25		28.25	34.50
0790	Twin sealed beam light, 25W 6V each				26.70	.300		39	8.25		47.25	55.50	
0900	Self-contained fluorescent lamp pack			↓	10	.800	↓	190	22		212	242	
115	0010	EXTERIOR FIXTURES With lamps			1 Elec	8	1	Ea.	34	27.50		61.50	79
	0200	Wall mounted, incandescent, 100 watt											
	0400	Quartz, 500 watt				5.30	1.509		87	41.50		128.50	158
	0420	1500 watt				4.20	1.905		118	52.50		170.50	209
	0600	Mercury vapor, 100 watt				5.30	1.509		245	41.50		286.50	335
	0800	Wall pack, mercury vapor, 175 watt				4	2		250	55		305	360
	1000	250 watt				4	2		270	55		325	380
	1100	Low pressure sodium, 35 watt				4	2		200	55		255	305
	1150	55 watt				4	2		270	55		325	380
	1160	High pressure sodium, 70 watt				4	2		290	55		345	405
	1170	150 watt				4	2		315	55		370	430
	1180	Metal Halide, 175 watt				4	2		245	55		300	355
	1190	250 watt			↓	4	2	↓	330	55		385	450
	1200	Floodlights with ballast and lamp,											
	1400	pole mounted pole not included			1 Elec	2.40	3.333	Ea.	280	91.50		371.50	450
	1500	Mercury vapor, 250 watt				2.20	3.636		320	100		420	500
	1600	400 watt				2	4		490	110		600	705
	1800	1000 watt				2.70	2.963		300	81.50		381.50	455
	1950	Metal halide, 175 watt				2.20	3.636		390	100		490	580
	2000	400 watt				2	4		570	110		680	790
	2200	1000 watt				1.85	4.324		605	119		724	845
	2210	1500 watt				2.70	2.963		460	81.50		541.50	630
	2250	Low pressure sodium, 55 watt				2	4		510	110		620	725
	2270	90 watt				2	4		650	110		760	880
	2290	180 watt				2.70	2.963		260	81.50		341.50	410
	2340	High pressure sodium, 70 watt				2.70	2.963		295	81.50		376.50	450
	2360	100 watt				2.70	2.963		305	81.50		386.50	460
	2380	150 watt				2.20	3.636		415	100		515	605
	2400	400 watt			↓	2	4	↓	730	110		840	970
	2600	1000 watt											



Installing Contractor's Overhead & Profit

Below are the average installing contractor's percentage mark-ups applied to base labor rates to arrive at typical billing rates.

Column A: Labor rates are based on union wages averaged for 30 major U.S. cities. Base rates including fringe benefits are listed hourly and daily. These figures are the sum of the wage rate and employer-paid fringe benefits such as vacation pay, employer-paid health and welfare costs, pension costs, plus appropriate training and industry advancement funds costs.

Column B: Workers' Compensation rates are the national average of state rates established for each trade.

Column C: Column C lists average fixed overhead figures for all trades. Included are Federal and State Unemployment costs set at 7.3%; Social Security Taxes (FICA) set at 7.65%; Builder's Risk Insurance costs set at 0.34%; and Public Liability costs set at 1.55%. All the percentages except those for Social Security Taxes vary from state to state as well as from company to company.

Columns D and E: Percentages in Columns D and E are based on the presumption that the installing contractor has annual billing of \$500,000 and up. Overhead percentages may increase with smaller annual billing. The overhead percentages for any given contractor may vary greatly and depend on a number of factors, such as the contractor's annual volume, engineering and logistical support costs, and staff requirements. The figures for overhead and profit will also vary depending on the type of job, the job location, and the prevailing economic conditions. All factors should be examined very carefully for each job.

Column F: Column F lists the total of Columns B, C, D, and E.

Column G: Column G is Column A (hourly base labor rate) multiplied by the percentage in Column F (O&P percentage).

Column H: Column H is the total of Column A (hourly base labor rate) plus Column G (Total O&P).

Column I: Column I is Column H multiplied by eight hours.

		A		B	C	D	E	F	G	H	I
Abbr.	Trade	Base Rate Incl. Fringes		Work- ers' Comp. Ins.	Average Fixed Over- head	Over- head	Profit	Total Overhead & Profit		Rate with O & P	
		Hourly	Daily					%	Amount	Hourly	Daily
Skwk	Skilled Workers Average (35 trades)	\$24.65	\$197.20	19.0%	16.8%	13.0%	10.0%	58.8%	\$14.50	\$39.15	\$313.20
	Helpers Average (5 trades)	18.60	148.80	20.0		11.0		57.8	10.75	29.35	234.80
	Foreman Average, Inside (\$.50 over trade)	25.15	201.20	19.0		13.0		58.8	14.75	39.90	319.20
	Foreman Average, Outside (\$2.00 over trade)	26.65	213.20	19.0		13.0		58.8	15.65	42.30	338.40
Clab	Common Building Laborers	19.00	152.00	20.6		11.0		58.4	11.10	30.10	240.80
Asbe	Asbestos Workers	26.90	215.20	18.1		16.0		60.9	16.40	43.30	346.40
Boil	Boilermakers	28.05	224.40	11.3		16.0		54.1	15.20	43.25	346.00
Bric	Bricklayers	24.55	196.40	18.2		11.0		56.0	13.75	38.30	306.40
Brhe	Bricklayer Helpers	19.50	156.00	18.2		11.0		56.0	10.90	30.40	243.20
Carp	Carpenters	23.80	190.40	20.6		11.0		58.4	13.90	37.70	301.60
Cefi	Cement Finishers	23.25	186.00	12.0		11.0		49.8	11.60	34.85	278.80
Elec	Electricians	27.50	220.00	7.6		16.0		50.4	13.85	41.35	330.80
Elev	Elevator Constructors	28.15	225.20	9.0		16.0		51.8	14.60	42.75	342.00
Eqhv	Equipment Operators, Crane or Shovel	25.40	203.20	12.6		14.0		53.4	13.55	38.95	311.60
Eqmd	Equipment Operators, Medium Equipment	24.35	194.80	12.6		14.0		53.4	13.00	37.35	298.80
Eqlt	Equipment Operators, Light Equipment	23.40	187.20	12.6		14.0		53.4	12.50	35.90	287.20
Eqol	Equipment Operators, Oilers	20.75	166.00	12.6		14.0		53.4	11.10	31.85	254.80
Eqmm	Equipment Operators, Master Mechanics	25.95	207.60	12.6		14.0		53.4	13.85	39.80	318.40
Glaz	Glaziers	23.80	190.40	15.4		11.0		53.2	12.65	36.45	291.60
Lath	Lathers	23.70	189.60	13.3		11.0		51.1	12.10	35.80	286.40
Marb	Marble Setters	24.65	197.20	18.2		11.0		56.0	13.80	38.45	307.60
Mill	Millwrights	25.10	200.80	12.6		11.0		50.4	12.65	37.75	302.00
Mstz	Mosaic and Terrazzo Workers	24.20	193.60	10.4		11.0		48.2	11.65	35.85	286.80
Pord	Painters, Ordinary	22.20	177.60	15.8		11.0		53.6	11.90	34.10	272.80
Psst	Painters, Structural Steel	23.10	184.80	60.9		11.0		98.7	22.80	45.90	367.20
Pape	Paper Hangers	22.40	179.20	15.8		11.0		53.6	12.00	34.40	275.20
Pile	Pile Drivers	23.95	191.60	31.5		16.0		74.3	17.80	41.75	334.00
Plas	Plasterers	23.30	186.40	16.6		11.0		54.4	12.70	36.00	288.00
Plah	Plasterer Helpers	19.75	158.00	16.6		11.0		54.4	10.75	30.50	244.00
Plum	Plumbers	28.30	226.40	9.6		16.0		52.4	14.85	43.15	345.20
Rodm	Rodmen (Reinforcing)	26.40	211.20	36.2		14.0		77.0	20.35	46.75	374.00
Rofc	Roofers, Composition	21.55	172.40	34.2		11.0		72.0	15.50	37.05	296.40
Rots	Roofers, Tile and Slate	21.60	172.80	34.2		11.0		72.0	15.55	37.15	297.20
Rohe	Roofer Helpers (Composition)	15.35	122.80	34.2		11.0		72.0	11.05	26.40	211.20
Shee	Sheet Metal Workers	27.35	218.80	13.2		16.0		56.0	15.30	42.65	341.20
Spri	Sprinkler Installers	30.35	242.80	9.9		16.0		52.7	16.00	46.35	370.80
Stpi	Steamfitters or Pipefitters	28.30	226.40	9.6		16.0		52.4	14.85	43.15	345.20
Ston	Stone Masons	24.70	197.60	18.2		11.0		56.0	13.85	38.55	308.40
Sswk	Structural Steel Workers	26.50	212.00	42.7		14.0		83.5	22.15	48.65	389.20
Tilf	Tile Layers (Floor)	24.00	192.00	10.4		11.0		48.2	11.55	35.55	284.40
Tilh	Tile Layer Helpers	19.25	154.00	10.4		11.0		48.2	9.30	28.55	228.40
Trlt	Truck Drivers, Light	19.40	155.20	16.3		11.0		54.1	10.50	29.90	239.20
Trhv	Truck Drivers, Heavy	19.70	157.60	16.3		11.0		54.1	10.65	30.35	242.80
Sswl	Welders, Structural Steel	26.50	212.00	42.7		14.0		83.5	22.15	48.65	389.20
Wrck	*Wrecking	19.00	152.00	42.5		11.0		80.3	15.25	34.25	274.00

*Not included in Averages.

APPENDIX D
UTILITY BILL ANALYSIS



SUBJECT _____
DESIGNER Hutchins
CHECKER _____

AEP NO _____
SHEET _____ OF _____
DATE 3/6/95
DATE _____

Utility Bill Analysis Summary

Summer

Demand
Energy
Total Avg.

\$ 14.13 /kw
\$ 0.0343 /kwh
\$ 0.0846 /kwh

Summer

Winter

\$ 12.58 /kw
\$ 0.0258 /kwh
\$ 0.0475 /kwh

Annual Avg

Demand
Energy
Total Avg

\$ 13.36 /kw
\$ 0.0301 /kwh
\$ 0.0661 /kwh

$$\$ 0.0661 / \text{kwh} \times \frac{\text{kwh}}{.003413 \text{ MBtu}} = \$ 19.37 / \text{MBtu}$$

1995 RATES - PBA

ELECT 0.0687 /kwh \$ 20.13 /MBtu

SOURCE: ~~ARMY~~ POWER PROCUREMENT



SUBJECT _____
DESIGNER _____
CHECKER _____

AEP NO _____
SHEET _____ OF _____
DATE _____
DATE _____

Pine Bluff Arsenal - Utility Bill Analysis

Jan '95 - A & B Substation - Winter Rate (Oct-May)

Energy use = 1,352,736 kWh
Demand =

973 kW
2410 kW
2328 kW
1018 kW

Demand

Demand charge	2328 kW * 7.37	= \$ 17,157
Decon. cost ①	616 kW * 0.27	= 166
Decon. cost ②	1712 kW * 0.38	= 651
M33	2328 kW * 6.74	= 15,691
TAX ADJ.	2328 kW * (0.89)	= (2072)
ECDR	2328 * 0.21	= 489
RET ON EQ.	2328 * (0.64)	= (1490)
DEPR RATE ADJ.	2328 * (0.24)	= (559)
M33A	616 * (0.19)	= (117)
M33A	1712 * (0.37)	= (633)
		<u>\$ 29,283</u>

Avg. demand charge = $\$29,283 \div 2328 \text{ kW} = \$12.58 / \text{kW}$

Energy	1,352,736 * 0.03242	= \$ 43,856
Fuel Adj.	1,352,736 * (0.006375)	= (8624)
Reg. Mand. Cost	1,352,736 * 0.00019	= 257
M&A S Adj.	1,352,736 * (0.000404)	= (547)
		<u>\$ 34,942</u>

Avg. energy charge = $34,942 \div 1,352,736$
= 0.0258 \$/kWh

Avg. total chg =
 $(29,283 + 34,942) = \$0.0475$
1,352,736 kWh

RS&H
 SUBJECT _____

 DESIGNER _____
 CHECKER _____

 AEP NO _____
 SHEET _____ OF _____
 DATE _____
 DATE _____

Utility Bill Analysis

August '94 - A & B Substation - Summer Rate (Jun-Sep)

Energy use = 1,136,528 kwh

Demand = 4042 kw

Demand

Demand Charge =	4042 * 8.87	= \$ 35,853
Decon.	4042 * 0.27	1091
Grand Gulf	4042 * 6.74	27,242
Tax Adj	4042 * (0.89)	(3597)
ECDR	4042 * 0.21	848
ROE	4042 * (0.64)	(2586)
Depr. Rate Adj.	4042 * (0.24)	(970)
G.C. Res. Credit	4042 * (0.19)	(768)
		\$ 57,113

Avg. Demand chrg = $\frac{\$ 57,113}{4042 \text{ kw}} = \$ 14.13 / \text{kw}$

Energy

Energy Charge	1,136,528 * 0.0389	= \$ 44,210
Fuel Adj.	" * (0.00471)	= (5354)
Reg Mand. Cost	" * 0.0009	= 216
M & S Adj.	" * (0.00008)	(96)
		\$ 38,976

Avg. Energy Chg = $\frac{\$ 38,976}{1,136,528} = \$ 0.0343 / \text{kwh}$

Avg. total Chg = $(57,113 + 38,976) \div 1,136,528 = \$ 0.0846 / \text{kwh}$



U.S. ARMY

ARMAMENT, MUNITIONS AND CHEMICAL
COMMAND

PINE BLUFF ARSENAL
PINE BLUFF, ARKANSAS

TO: Reynolds, Smith + Hills

DATE: 6 Mar 95

DSN: Attn: Paul Hutchins

FAX: 904-279-2489

CLASSIFICATION: Unclass

NO. OF PGS. 9
(including cover sheet)

PRECEDENCE: Routine

REMARKS:

I hope the bills will be readable--My copy is not that good. Please call if it isn't clear enough.

FROM: Nancy Rimmer

FAX: 501-540-3251

PHONE: 501-540-3312

RELEASER'S SIGNATURE: Nancy Rimmer

LOG NO. _____

JUL 26 '94 9:36
JUL-22-94 FRI 9:30
JUL-21-94 THU 8:58

L, R

Pine Bluff DDC

FAX NO. 5015414789

P. 02

Arseval A + B

RATE APPLICATION MANUAL
SECTION 325
PAGE 1 of 2

Nancy Rimmer
(501) 540-3312

ARKANSAS POWER & LIGHT COMPANY
LARGE POWER SERVICE
BILL CALCULATION SHEET

RATE CODE - LP1, LP2, LP3, LP4, LP5

BILLING INFORMATION:

Account No. _____ KWH _____ KW _____
Fuel Adjustment Factor (\$/KWH) _____
Rider M43 Factor (\$/KWH) _____
Franchise Tax Rate (%) _____ Sales Tax Rate (%) _____

NET MONTHLY BILL CALCULATION:

		Summer Period ** \$358.88	Other Period \$358.88	
A.	CUSTOMER CHARGE:			
Plus	B. DEMAND CHARGE:	_____ KW @ \$14.98 14.13	_____ KW @ \$14.98 12.65	
Plus	C. ENERGY CHARGE:	_____ KWH @ \$0.03209	_____ KWH @ \$0.03261	
Plus	D. FUEL ADJUSTMENT (M27)	_____ (\$/KWH/Month x \$/KWH)		
Plus	E. MO SALE ADJUST (M43)	_____ (\$/KWH/Month x \$/KWH)		
Minus	F. A/C CONTROL SWITCH (M22) (if applicable)	_____ (Refer to the back of this sheet for determination of M22 credit)		
Plus	G. ACT 6 ADJUSTMENT (M44)	_____ (A+B+C+D+E-F) x 0.0007731		
Plus	H. FRANCHISE TAX (M26)	_____ (A+B+C+D+E-F+G) x Franchise Tax Rate		
Plus	I. SALES TAX	_____ (A+B+C+D+E-F+G+H) x Sales Tax Rate		
Equals	J. TOTAL BILL	_____ (A+B+C+D+E-F+G+H+I)		

NOTE: For Rate Codes LP2, LP3, LP4, & LP5 make adjustments per Rate Schedule M1.
Summer Period (See Back of Sheet)
M22 Credit (See Back of Sheet)

January, 1994
Effective 01/01/94

FOR ASSISTANCE CONTACT:
RATE ADMINISTRATION
TCBY-21, L. R., 750-5583

Arsenal C

RATE APPLICATION MANUAL
 SECTION 825
 PAGE 1 of 2

ARKANSAS POWER & LIGHT COMPANY
 LARGE POWER SERVICE
 BILL CALCULATION SHEET

RATE CODE - LP1, LP2, LP3, LP4, LP5

BILLING INFORMATION:

Account No. _____ KWH _____ KW _____
 Fuel Adjustment Factor (\$/KWH) _____
 Rider M43 Factor (\$/KWH) _____
 Franchise Tax Rate (%) _____ Sales Tax Rate (%) _____

NET MONTHLY BILL CALCULATION:

		Summer Period **	Other Period	
A.	CUSTOMER CHARGE:	\$368.88	\$368.88	_____
Plus	B. DEMAND CHARGE:	_____ KW @ \$14.88- 13.19	_____ KW @ \$13.48 11.67	_____
Plus	C. ENERGY CHARGE:	_____ KWH @ \$0.03909	_____ KWH @ \$0.03261	_____
Plus	D. FUEL ADJUSTMENT (M27)	_____ (\$/KWH/Month x \$/KWH)		
Plus	E. MO SALE ADJUST (M43)	_____ (\$/KWH/Month x \$/KWH)		
Minus	F. A/C CONTROL SWITCH (M22) (If applicable)	_____ (Refer to the back of this sheet for determination of M22 credit)		
Plus	G. ACT 6 ADJUSTMENT (M44)	_____ (A+B+C+D+E-F) x 0.0007731		
Plus	H. FRANCHISE TAX (M28)	_____ (A+B+C+D+E-F+G) x Franchise Tax Rate		
Plus	I. SALES TAX	_____ (A+B+C+D+E-F+G+H) x Sales Tax Rate		
Equals	J. TOTAL BILL	_____ (A+B+C+D+E-F+G+H+I)		

* NOTE: For Rate Codes LP2, LP3, LP4, & LP5 make adjustments per Rate Schedule M1.
 ** Summer Period (See Back of Sheet)
 *** M22 Credit (See Back of Sheet)

January, 1994
 Effective 01/01/94

FOR ASSISTANCE CONTACT:
 RATE ADMINISTRATION
 TCBY-28, L. R., 750-5583

Electrical Data for Lighting Survey

1. Winter rates applied from October thru May.
2. Summer rates applied from June thru Sept.
3. Demand charge per maximum demand KW per any 15 minute period during month.

Sub-Station	Year	Winter Rate (\$/KW)	Summer Rate (\$/KW)
A&B C	1994	\$7.37	\$8.87
	1994	6.43	7.93
A&B C	1993	7.37	8.87
	1993	6.43	7.93

4. Average cost per KW (Substations A&B, and C average) FUEL ADJUSTMENT COST (\$/KW)

Month	1994		1993		1992		1991		1990	
	FUEL ADJ COST	\$/KW	FUEL ADJ COST	\$/KW	FUEL ADJ COST	\$/KW	FUEL ADJ COST	\$/KW	FUEL ADJ COST	\$/KW
Jan	.0495	.0061	.0492	.0066	.0458	.0067	.0541	.0061	.0520	.0036
Feb	.0495	.0093	.0501	.0075	.0463	.0076	.0542	.0059	.0503	.0044
Mar	.0482	.0077	.0535	.0071	.0462	.0068	.0464	.0060	.0510	.0041
Apr	.0509	.0074	.0503	.0083	.0477	.0068	.0472	.0066	.0519	.0043
May			.0700	.0054	.0639	.0017	.0608	.0055	.0519	.0043
Jun			.0625	.0046	.0612	.0035	.0560	.0039	.0642	.0045
Jul			.0680	.0037	.0657	.0050	.0568	.0026	.0493	.0034
Aug			.0631	.0017	.0628	.0038	.0563	.0042	.0728	.0027
Sep			.0607	.0036	.0551	.0060	.0520	.0049	.0526	.0053

Oct	.0548	.0061	.0530	.0076	.0471	.0067	.0546	.0056
Nov	.0560	.0049	.0542	.0083	.0350	.0063	.0508	.0049
Dec	.0535	.0053	.0546	.0051	.0426	.0055	.0515	.0041

JUL-22-84 FRI 8:14

PINE BLUFF ARSENAL KVA

Substations A & B

	<u>1994</u>	<u>1993</u>	<u>1992</u>	<u>1991</u>
Jan	1929.7	1577.5	1633.9	4407.9
Feb	2061.7	1799.6	1609.3	4120.2
Mar	2061.7	1708.7	1748.8	1968.9
Apr	1408.4	1762.2	2385.2	1883.0
May	1360.0	1993.2	2211.9	2663.5
Jun	1629.6	2828.9	2686.6	2302.6
Jul		2719.3	2698.7	2445.2
Aug		2719.3	2424.4	2339.1
Sep		3336.5	2443.5	2341.7
Oct		2531.5	1808.6	1734.9
Nov		1894.6	1892.4	1615.6
Dec		1815.3	1477.4	1561.0

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YEARLY BUILDING REPORT FOR ELECTRICITY USAGE

BUILDING	DATE	KWH	COST
10-020	OCT 92	13,760	\$855.87
Admin	NOV 92	7,200	\$447.84
	DEC 92	11,840	\$736.45
	JAN 93	10,880	\$676.74
	FEB 93	12,800	\$796.16
Assigned:	MAR 93	11,680	\$726.50
MPCAO (Adj)	APR 93	17,760	\$1,104.67
	MAY 93	15,360	\$955.39
	JUN 93	21,440	\$1,333.57
SF:42,568	JUL 93	22,400	\$1,393.28
	AUG 93	28,000	\$1,741.60
	SEP 93	21,920	\$1,363.42
	TOTAL	195,040	\$12,131.49

6.22 4/2ewk

10-040	OCT 92	9,629	\$598.92
Signal	NOV 92	8,527	\$530.38
	DEC 92	9,113	\$566.83
	JAN 93	7,474	\$464.88
Assigned:	FEB 93	8,205	\$510.35
DOIM	MAR 93	7,871	\$489.58
	APR 93	9,891	\$615.22
	MAY 93	8,815	\$548.29
	JUN 93	10,584	\$658.32
	JUL 93	10,627	\$661.00
	AUG 93	12,466	\$775.39
SF: 3,188	SEP 93	11,183	\$695.58
	TOTAL	114,385	\$7,114.75

10-050	OCT 92	7,280	\$452.82
Fire Hq	NOV 92	5,840	\$363.25
	DEC 92	6,480	\$403.06
	JAN 93	5,520	\$343.34
	FEB 93	5,920	\$368.22
Assigned:	MAR 93	5,520	\$343.34
FP&P Div	APR 93	6,800	\$422.96
	MAY 93	6,720	\$417.98
	JUN 93	9,520	\$592.14
	JUL 93	11,040	\$686.69
	AUG 93	12,800	\$796.16
SF: 3,188	SEP 93	10,000	\$622.00
	TOTAL	93,440	\$5,811.97